



This is a digital copy of a book that was preserved for generations on library shelves before it was carefully scanned by Google as part of a project to make the world's books discoverable online.

It has survived long enough for the copyright to expire and the book to enter the public domain. A public domain book is one that was never subject to copyright or whose legal copyright term has expired. Whether a book is in the public domain may vary country to country. Public domain books are our gateways to the past, representing a wealth of history, culture and knowledge that's often difficult to discover.

Marks, notations and other marginalia present in the original volume will appear in this file - a reminder of this book's long journey from the publisher to a library and finally to you.

### Usage guidelines

Google is proud to partner with libraries to digitize public domain materials and make them widely accessible. Public domain books belong to the public and we are merely their custodians. Nevertheless, this work is expensive, so in order to keep providing this resource, we have taken steps to prevent abuse by commercial parties, including placing technical restrictions on automated querying.

We also ask that you:

- + *Make non-commercial use of the files* We designed Google Book Search for use by individuals, and we request that you use these files for personal, non-commercial purposes.
- + *Refrain from automated querying* Do not send automated queries of any sort to Google's system: If you are conducting research on machine translation, optical character recognition or other areas where access to a large amount of text is helpful, please contact us. We encourage the use of public domain materials for these purposes and may be able to help.
- + *Maintain attribution* The Google "watermark" you see on each file is essential for informing people about this project and helping them find additional materials through Google Book Search. Please do not remove it.
- + *Keep it legal* Whatever your use, remember that you are responsible for ensuring that what you are doing is legal. Do not assume that just because we believe a book is in the public domain for users in the United States, that the work is also in the public domain for users in other countries. Whether a book is still in copyright varies from country to country, and we can't offer guidance on whether any specific use of any specific book is allowed. Please do not assume that a book's appearance in Google Book Search means it can be used in any manner anywhere in the world. Copyright infringement liability can be quite severe.

### About Google Book Search

Google's mission is to organize the world's information and to make it universally accessible and useful. Google Book Search helps readers discover the world's books while helping authors and publishers reach new audiences. You can search through the full text of this book on the web at <http://books.google.com/>

NYPL RESEARCH LIBRARIES



3 3433 06275492 8









528365 THE  
EDISON  
MONTHLY

LIBRARY  
METRO. LEONARD AND  
TIGER FOUNDATIONS  
V. 3  
1910-11

JUNE



1910

THE NEW YORK EDISON COMPANY  
55 DUANE STREET NEW YORK

VGA

# The New York Edison Company

## GENERAL OFFICES 55 Duane Street

*Telephone Worth 3000*

### BRANCH OFFICES      TELEPHONE

115 Delancey St : : Orchard 1960  
124 West 42d St : : Bryant 5262  
839 Third Avenue : Plaza 6543  
27 East 125th St : : Harlem 4020  
360 East 149th St : : Melrose 3340

### EMERGENCY NIGHT AND SUNDAY CALL—BRYANT 145

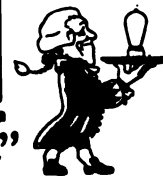
### *Territory Served by the Various Supply Offices*

FIRST AND DELANCEY STREET  
DISTRICT, 546 PEARL STREET  
All territory South of Eighth Street from  
the East to the North River  
TELEPHONE No WORTH 3000

SECOND DISTRICT  
115 WEST 39th STREET  
Eighth Street to Fifty-ninth Street, both  
inclusive, from the East to the North River  
TELEPHONE No BRYANT 145

THIRD DISTRICT  
173 WEST 107th STREET  
North of Fifty-ninth Street from East to  
North River to and including One Hun-  
dred and Thirty-sixth Street, east of St  
Nicholas Avenue, and to the south side  
of One Hundred and Thirty-fifth Street  
west of St Nicholas Avenue  
TELEPHONE No RIVERSIDE 4889

BRONX DISTRICT  
140th STREET AND RIDER AVE  
All territory lying within the Borough of  
the Bronx  
TELEPHONE No MELROSE 3330



*"At Your Service"*

# The Edison Monthly



June

1910

VOLUME III

CONTENTS

NUMBER 1

	Page
Editorial	2
Improved Window Lighting on Fifth Avenue	4
Condensed Instructions for the Operation of "Exide" and "Hycap-Exide" Batteries	6
Increasing Use of Electric Autos	8
Sundh Gauge Type Pressure Regulator	10
An Interesting Comparison	10
A Large Turnout of Electrics	10
The Sturtevant Ventilating Apparatus	12
Electricity in the Treatment of Cancers	13
Tungsten Lamp Filaments	13
Danger to Employees Avoided by the Use of Electric Power	14
Electric Lighting Secures Business	16
Electric Air Purifier	17
The G-M Lamp	18
Electric Japanning Oven	21
Electric Lighting in Groceries and Provision Stores	21
Show Window Illumination from an Economical Standpoint	22
The Helios Economical Lighting System	24
Electricity vs Gasoline in a Laundry	25
Electric Refrigeration	25
The Public Bank of New York	27
Electric Welding	28
Electric Lighting in Banks	28
Showing What Some of Our Scotch Friends Think of Us	29
Electric Melting Pots	29
The Weser Player Piano	30

# Editorial

## *The Edison Monthly*

Published by

*The New York Edison Company*

General Offices

55 Duane Street New York City

President

ANTHONY N. BRADY, 54 Wall Street

Treasurer

JOSEPH WILLIAMS, 55 Duane Street

Secretary

LEWIS B. GAWTRY, 4 Irving Place

One of the noticeable tendencies of the manufacturers of electric automobiles for pleasure or business is to under rather than overestimate the advantages of their apparatus. In this respect they have adopted a conservative policy. This may be in the intended interest of the user. Carried too far, however, modesty may be overdone. Over-modesty in claims of excellence may be as much to the disadvantage of the user as to the disadvantage of the maker.

A representative of one of the largest department stores in this city, whose delivery service receives a large measure of attention that it may be developed to the highest degree of perfection, states that their experience between the respective types of horse, gasoline and electric vehicles has been such as to justify the opinion that the claims made by the manufacturers of the latter fall far short of the performance of their vehicles. The result of their investigation and experience has been that the electric is infinitely superior to any other type now available.

An interesting and controlling feature of any business automobile service may be pointed out. The pleasure machine largely, if not entirely, may pick its road. It may entirely avoid a road difficult to pass. On the other hand, the road of the business vehicle is picked by the consumer. It must go to any point at which the consumer desires to have goods delivered.

In the opinion of an experienced manager to whom reference has just been made no vehicle other than the electric and the horse has as yet been developed which would stand these conditions. He says that the gasoline car quickly succumbs. This will be readily understood by any one familiar with cars of this type having a number of delicate, carefully adjusted parts, all of which are subject to a great deal of strain at best, and a strain that disarranges or utterly wrecks them where roads are of an extremely difficult character.

Inquiry amongst the different manufacturers of electric vehicles strengthens the opinion that they are over-conservative in their statements. They want their customers to find the performance of their machines far in excess of any promise they have made in effecting a sale.

All agree, however, upon one material point. This is that a large saving will be effected, varying from

fifteen per cent to forty per cent upon the cost of other methods of transportation. After years of experience with a large number of vehicles engaged in every character of service our own opinion is that the saving from the standpoint of results produced is much greater than even this higher percentage.



We reproduce in this issue a letter received by a New York merchant ordering some neckwear that the writer had seen in a well-lighted show case in front of the store. Had electric lights not been used after business hours the store would have been passed unnoticed. This, of course, is only an incident out of many direct and indirect results from electric light advertising, but it serves as an illustration of its benefits.

It is characteristic of visitors to the city to walk about the streets evenings. An attractively lighted show window or a brilliant electric sign is sure to draw the passer-by irresistibly toward the store. Goods on display will be inspected, as the business of the day is over and the visitor has time for reflection.

The next day or at some later time the observer will naturally seek the store where he or she saw articles that pleased their taste. In truth it may be said that electric lights act as a silent salesman, doing duty during the hours stores are closed.



Let us make a few suggestions about the use of electric fans, as the heat of

summer will soon be here. In the first place, electric fans are reasonable in price and are easily in reach of families even in humble circumstances. The cost of operation is nominal; no more than the cost of burning the ordinary incandescent lamp.

Place a fan in the kitchen so that it will blow outward through an open window and it will remove the heated air and smell of cooking. Operated in any room it will keep the air in circulation, which adds to the comfort of those occupying it.



Fans are made in many styles. The desk and bracket fans are adjustable, so that the breeze may be thrown at various angles upward or downward if a direct breeze is not desired. Then there is the ceiling fan for stores. The oscillating fan distributes the breeze throughout a room, much to everybody's comfort. The small desk fan is light in weight, so that it can be easily carried from room to room. When the housewife finishes her kitchen work she can carry the fan to another room and simply attach the flexible cord to the nearest fixture. What could add more comfort when sewing on a hot day than a cool, steady breeze?



The applications of an electric fan are innumerable and are useful all the year around. Considering the first cost and the operating expense, there is nothing from which so much comfort can be derived at so little expenditure.

# Improved Window Lighting on 5<sup>th</sup> Ave.



West Side of Fifth Avenue, Thirty-eighth to Thirty-ninth Streets, Before Illumination  
Photograph was taken looking north and the exposure lasted about thirty minutes

**A**N energetic window lighting campaign, showing the possibilities of window lighting, has been

launched on Fifth Avenue between Thirty-eighth and Thirty-ninth Streets. Our illustrations show an interesting comparison between the same buildings before and after the new



West Side of Fifth Avenue, Thirty-ninth to Thirty-eighth Streets, Before Illumination  
Photograph was taken looking south and the exposure lasted about thirty minutes



**Photograph of Same View as that on Opposite Page After Illumination. Exposure only five minutes**

illumination was installed. A careful count was made of the number of pedestrians passing in this block previous to the new regime and afterward. Before the illumination in one evening, between eight and nine o'clock, 429 persons passed through the block.

A few days later, after the illumination was in use, 1,263 persons passed the same point, and on this night nearly every one stopped to examine the display. A few considerations on the subject of window lighting will be of interest.



**Photograph of Same View as that on Opposite Page After Illumination. Exposure only five minutes**



# Condensed Instruction for the Operation of Exide and Hycap Exide Batteries

## PART II

**T**HESE (4) successive hydrometer readings on each of these cells should likewise show no change. If they increase, showing a rise in the gravity, the charge should be continued until there is no further rise for two (2) successive readings.

Note, however, that the charge must be temporarily stopped if the temperature of the battery gets above 110°, and must not be started again until it has dropped to 100° or lower.

Keep the level of the fluid in the cells one-half (½) inch above the top of the plates. When it falls below this point, add pure water, never acid.

Do not charge the battery if, from experience with the vehicle, it is known that the next trip can be made without charging.

On the other hand, never allow the battery to stand entirely or almost entirely discharged. When in this condition, it must be charged immediately.

If a battery is not to be used for several days, it should be fully charged before standing. If it continues idle for some time, a small charge should be given every two weeks, using the low rate given on name plate. Stop this charge when the cells give off gas freely.

As a battery is used, a deposit (sediment) collects in the bottom of the jars, due to the gradual wear on

the plates. Great care should be exercised that the sediment does not touch the bottom of the plates, thereby short-circuiting them and materially shortening the life of the battery. Before this occurs, the cells should be cut apart and the sediment removed. It is impossible to state definitely at what intervals the sediment should be removed, as this depends on the work the battery does and the care it receives.

To determine when to remove the sediment, it is advisable, after the battery has been charged fifty times, to cut out for inspection one cell from the center of the battery. Then, from the height of the sediment, estimate when it should be cleaned out, making the estimate safe by a sufficient margin to insure cleaning before the sediment can possibly reach the plates. The sediment should be removed when it has accumulated to one-quarter (¼) inch below the bottom of the plates. As an example, suppose the jars have ribs in the bottom one and three-quarters (1¾) inches high, the sediment should be cleaned out when it becomes one and one-half (1½) inches deep; so, if, after having been charged fifty times, there is found one-half (½) inch of sediment, then, at the same rate of deposit, cleaning should be done after the battery has received 100 additional charges, or a total of 150; but on account of the

more rapid rate of deposit with age, it is necessary to make an allowance—say 20 per cent, which would mean cleaning after a total of 120 charges. If, after fifty charges, three-quarters ( $\frac{3}{4}$ ) inch of sediment be found, then the battery should be cleaned after a total of 100, less 20 per cent, or eighty charges, (that is, in addition to the original fifty).

On application to the Company will advise you where the above inspection can be most conveniently made, and the battery, cleaned when necessary, which can be determined only by an inspection, or, if one of our own inspectors should be in your vicinity at the time, we will arrange to have him call upon you, inspect your battery, give you a report on its condition and give you general information as to its care and operation. For this service we make no charge.



*G. C. Bachstein, Owner*

*Franklin Bayler, Architect*

**The New Franklin-Hudson Building, corner of Hudson and Franklin Streets. This building will use Edison Service for 2,000 incandescent lamps and 250 horse-power in motors.**

In case, for any reason, it should ever become necessary to take a cell of the battery apart, the following points should be carefully noted in reassembling it:

The negative group (gray plates) contains one more plate than the positive group (brown plates).

Each positive plate is separated



General Vehicle Company's Truck Used by a Large Manufacturing Company

from the adjoining negative plates by a perforated rubber sheet and a wood separator grooved on one side. The rubber sheets must always be placed next the positive plates and the wood separators next the negative plates with the plain side next the negative plate.

Throughout the battery, the positive group of each cell is connected to the negative group of the adjoining cell, thus leaving a free positive terminal at one end and a free nega-

tive terminal at the other end of each tray, and of the complete battery. In connecting a cell into the battery, this point must be carefully observed.

### Increasing Use of Electric Autos

**E**VEN to the casual observer, the great number of electric commercial vehicles on the streets at the present time must be a convincing fact that they are the wagons of the future. From a comparatively



Electric Truck with Trailer for Use in Moving Scenery



**Trainload of Electrics for Gimbel Brothers Leaving the Studebaker Factory**

small beginning the electric has forged rapidly ahead until it is fast passing its competitors in number for commercial purposes.

This development has not taken place in a month or a year, but is the outcome of careful tests and comparative results. The electric has proved its efficiency in severe weather in all of the large cities. The great department stores are fast

displacing the horse-drawn wagons with electric commercial wagons, and have found them much more economical and satisfactory in every respect.

One of the latest acquisitions to the devotees of electrics is the firm of Gimbel Brothers, who will operate them for delivery purposes upon the opening of their new mammoth building this coming autumn.



**One of the New Electrics to be Used by the Gimbel Store.  
Made by the Studebaker Automobile Company**

### Sundt Gauge Type Pressure Regulator

**F**OR the automatic control of small motors, traving compressors, pumps and similar apparatus the Sundt Gauge Type Pressure Regulator is especially suitable. In its name implies, that of the gauge type and uses the movement of the Bourdon tube for its operation on pressure variations.

The construction consists of a silver-plated contact lever attached to the tube moving between two silver contact points in pressure fluctuations.

The screw on the right is used for ad-



Sundt Gauge Type Pressure Regulator

justing to maximum or minimum pressure, and the lower screw on left hand side is for adjusting for difference in pressure.

It can be set to operate on a constant difference of about 100 to 200 per cent for close regulation, but of course a wider range can be had by screwing down the lower left-hand screw.

There is an enclosing iron case with brass rim holding the glass in place.

The controlling circuit is of three wires, and the contact points only make, but do not break, the circuit.

The accompanying illustrations show the regulator and its connections, which are made by the Sundt Electric Company, New York.

### An Interesting Comparison

**A**RTER in the early eighties, in talking in the electrical situation of that time, says in the course of his article, "There are several electric lighting stations of from three thousand to five thousand

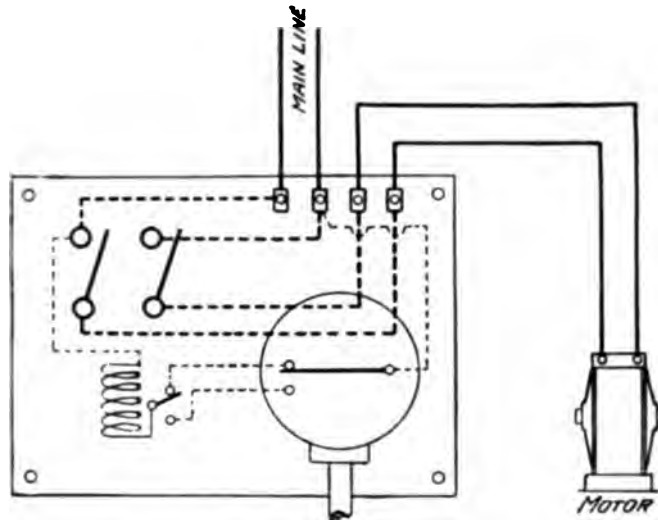
horse-power, and steam engine capacities engaged every hour of the year in producing electricity for lighting purposes.

I compare these figures with the capacity of the water-side stations of The New York Edison Company, which are capable of supplying over half a million horse-power in electrical energy, and the great advance of electrical development in a quarter of

a century will be appreciated.

### A Large Turnout of Electricians

**T**HE reception given ex-Vice-President Fairbanks on his return to Indianapolis from his grand tour of the world was an old-fashioned neighborhood greeting



**Connection Diagram of Sundh Pressure Regulator When Used for Starting Small Motors Without Starting Resistance**

from friends and townspeople of all ranks and conditions.

In the parade from the railroad station to the speaker's stand at Monument Circle only gasoline cars were used to convey the guest of honor and the reception committee, while the

committee of ladies who met Mrs. Fairbanks were appropriately borne in Waverley Electrics. The accompanying picture shows this part of the parade halting in front of Christ Church, Indianapolis, opposite the speaker's stand.



**Waverley Electrics at the Reception to ex-Vice-President Fairbanks**

# The Sturtevant Ventilating Apparatus

**T**HE Sturtevant Ventilating Apparatus is the solution of the problem of the ordinary electric fan with absolute positive ventilation.

The set is installed with an outside connection in some manner similar to that shown in the illustration, and proves most efficient and satisfactory. The set is connected with an outside electric light circuit and is furnished with a very small and compact and yet efficient.

The need and value of efficient ventilation is being realized more and more and it is being shown that a business office may be made a comfortable breathing place by the Sturtevant Ventilating Apparatus.

readily seen how important this is.

Close air tends to create headaches, and many people leave important work unfinished thinking they have overtaxed their strength when it is simply a case of bad air. This set is a very compact and convenient device and fills a long-felt need.

A new element in ventilating apparatus has been perfected by the Sturtevant Company. It consists of a small, tubular, electrically driven enclosed machine fan connected to the outside atmosphere in which supplies the motor with air from outside in or per minute, the fresh air being drawn in through one or more of the air inlets and is forced through diffusers which make the flow of air positive and gentle. The air which is forced in is so passed as to ensure by a design in the interior the sound waves are broken up so that no talking or noise can escape into or from the booth.

There have been other devices tried for ventilating booths, but this apparatus is the first one which positively ventilates without noise and draft and without any danger of sound being transmitted from into the booths.

The average telephone booth contains forty cubic feet of air, and as



Ventilating Apparatus as Adapted to Telephone Booths



Set Complete, Showing Shell and Fan Wheel and Electric Motor

the minimum ventilation prescribed by the Board of Health and State laws is thirty cubic feet of air per minute for each person, it is readily seen that the air in the booth is vitiated in a little over one minute. As telephone conversations are seldom less than one minute and often range from five to fifteen minutes, and the tightly closed booths allow practically no air supply, a person using the booth must breathe the air over and over again.

## Electricity in the Treatment of Cancers

RECENT London advices state that Dr G Betton Massey, of the Chicago Oncological Hospital, demonstrated to a number of surgeons a short time ago his improved method of operating electrically upon a cancer. The operation was performed at the Fulham Cancer Hospital by special permission of the Medical Committee, to whom Dr Massey

had explained his methods. It is the first operation by this method that he has been allowed to perform at any of the many European hospitals he has visited recently.

A patient suffering from a small malignant growth voluntarily submitted to the operation. The tumor was pierced by zinc needles coated with mercury, an electric current of about one-thousand milliamperes being applied. The growth became very white, then contracted. There was no bleeding. The tissues around the growth were also treated.

## Tungsten Lamp Filaments

ALTHOUGH the iron industry consumes the greater part of tungsten ore mined, the incandescent lamp manufacturers now use a considerable quantity. It is interesting to know that one pound of tungsten will make about 20,000 lamp filaments.

Place an electric sign in front of your place of business. It will attract attention and increase your sales.



Showing the Use of the Sturtevant Ventilating Apparatus in the Office



# Danger to Employees Avoided by the use of Electric Power

**I**t is an established fact that the cost of power in manufacturing establishments ranges approximately from two to five per cent of the total cost of operation. It has also been proven that electric motor drive increases production greatly in many cases as high as twenty-five and thirty per cent. It is apparent that by the use of power cost is thereby negligible when compared to mechanical power. "It is not used in sufficient



Circus Sign at Sixth Avenue and Thirty-  
Seventh Street



located at the same time and during by  
Bernard J. Baker, a Jeweler and  
"Watchmaker" Street

There are no other persons known to have been in contact with the subject. There are no other persons known to have been in contact with the subject.

However, special attention is being given to such features as segregating the entire bus network in any locality, and to the advantages for individualized and more secure insurance freedom from accident than any other feature that can be introduced.

into a shop or factory. Overhead belting and shafting, a great source of danger, are eliminated. The motor can be connected to a machine in such a manner that all gearing and connecting devices can be entirely covered.

There will be free and unobstructed head room and all conditions will be favorable to immunity from danger of any kind.

Silk manufacturers have experienced great difficulty where mechanical power is used in avoiding bits of dirt and grease from dropping on the fabric. When this occurs a spot is made which necessitates cutting out a piece of the goods so that the balance has to be sold for remnants, entailing a considerable loss. Individual motor drive eliminated this trouble. In printing and publishing plants, laundries, cotton mills and all places where cleanliness is important electric drive is rapidly being introduced.

As a means of reducing fire risks electric motor drive has been a great help. Shafting and belting throw oil and grease on the side walls and ceilings, making them highly inflammable and easily ignited from a hot journal or static sparks.

There was, not long ago, a large paper mill completely destroyed by fire

caused by a loose metal belt lacing striking a pipe each revolution. The contact of the two metals drew a spark which set fire to the grease on the wall, causing the whole building to be consumed in a short time.

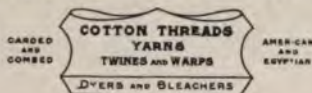


Attractive Sign at Broadway and Forty-third Street that Brought Forth a Great Deal of Favorable Comment

If space permitted volumes could be written in favor of the use of electric power, but the reasons given here are each in itself sufficient to warrant its use.

Use Edison Service.

## GREENE &amp; DANIELS MFG. CO.



PAWTUCKET RHODE ISLAND, U.S.A.

March 28, 1910

Mr. Nat Lewis,  
25 West 42nd St.,  
New York, N.Y.

Dear Sir:

Enclosed please find check for \$1.15 in payment for two four in hand ties, 55¢ each and 5¢ for postage. They were in a triangular glass showcase in front of your store. The ties alluded to were, one black with sort of a silver stripe in it and the other dark green with a red stripe in it, exactly the same design with different color effects. They were both on the middle shelf and the black tie was on the middle shelf between two other ties and the green tie was upon the same shelf upon the opposite corner. There can be no mistake as to the ties alluded to but if there should be any doubt you can return the check.

Respectfully yours  
*Samuel Dyer*



This Letter and Check Speak Well for the Advertising Value of Good Show Window Lighting

### Electric Lighting Secures Business

THAT the liberal use of electric lights in show windows and in exhibition cases in front of stores is productive of business was

forcibly illustrated by an incident that recently occurred to Mr Nat Lewis, who conducts a gentlemen's furnishing store at 25 West Forty-second Street.

Mr Lewis, as an up-to-date business man, is a firm believer in electric light

advertising, and always has an attractive display in his well-lighted windows and showcase to attract the passer-by after nightfall.

The accompanying reproduction of a letter and check received from a gentleman who was visiting New York a short time ago shows how a well-lighted place will attract people. The gentleman passed Mr Lewis' store about 6:30 p m, after closing hours.

This is only one of the many direct and indirect results from the liberal use of electric lights; it is the universal rule that they are business getters.

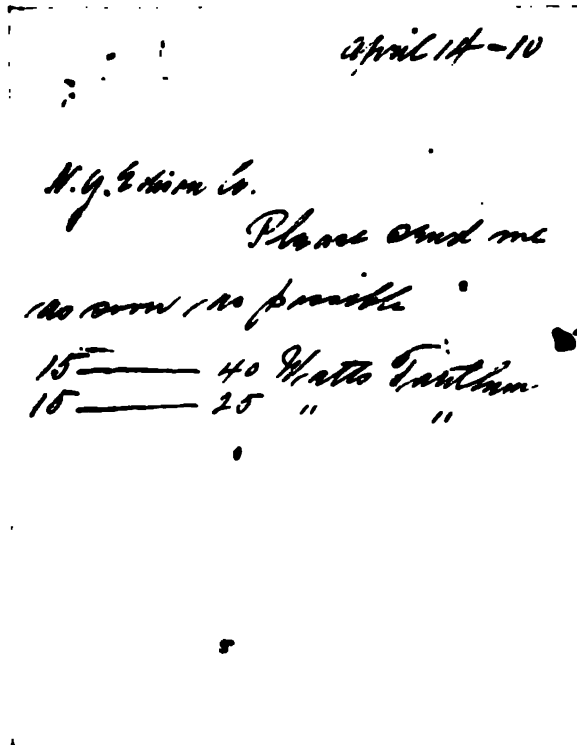
## Electric Air Purifier

THE DUNTLY MANUFACTURING COMPANY, of Chicago, have placed a pneumatic air cleanser on the market which frees a room of obnoxious odors, gas or smoke within a few minutes. It also removes disease germs and washes the air rapidly. The air is drawn through the cleanser at the rate of 110 cubic feet a minute and is brought into intimate contact with an absorbent or disinfecting fluid.

The device consists of a one-

eighth horse-power motor mounted on a vertical shaft, which drives a small centrifugal blower. The blast from this blower is passed over and thoroughly mixed with the disinfecting or perfumed fluid in an annular chamber in the middle of the apparatus, the treated air being then led to one or more nozzles which project into the extreme parts and corners of the room.

When the machine is operated, the air contents of the room are thus passed through the mixing chamber at the rate of 110 cubic feet a minute and in this manner entirely disinfected.



No Name, No Address. One of the many cases received that have insufficient information

## The G-M Lamp



The G-M Lamp is simple in construction. It can be taken apart for cleaning in a few seconds.

THE earliest records of history and the oldest relics of civilized man testify to the existence of the lamp. In fact, it is hardly conceivable that man should have advanced far enough to leave evidences of his existence without having made use of artificial light.

The lamp, in its primitive sense, is distinguished from the candle and torch by using a fluid oil as an illuminant. By analogy any device for producing artificial light is now called a lamp. The term particularly applies to a self-contained and easily movable lighting device, and such lamps will undoubtedly continue to exist to the end of time.

The primitive oil lamp, burning principally olive or other vegetable



The Broadway Tabernacle, Broadway and Fifty-sixth Street. The picture gives only a faint idea of the beautiful soft lighting effect from the outside of this church



oils, was a poor little contrivance compared with our modern light sources, and it is difficult for us to understand to-day how it could have served its purpose for so many centuries. Compared with the modern electric lamp such sources were mere glowing sparks, scarcely able to push back the darkness far enough to make themselves seen. Quantitatively compared, the electric lamp of to-day available for table use gives more than one hundred times as much light, and of a quality almost equal to sunlight instead of the lurid glow of the oil flame.

For reading, sewing and other work where sharp vision is required the work itself should be well illuminated, but the eyes should be completely shaded from the direct rays of the source. This can be best accomplished by a portable, or table lamp. So much better is the illu-



The G-M Lamp



The New Theatre, Central Park West and Sixty-second Street. Showing the sign and other exterior lighting of this building

## The Edison Monthly

illumination from such a lamp than from a chandelier suspended from the ceiling that many men use of lamps where electricity is at hand.

But the ordinary portable electric lamp is generally either a mere piece of brass or brass, and fit for decorative purposes only, or it is so poorly designed as to be even worse than the overhead chandelier for producing useful illumination. For example, many of the lamps, in order to carry

that gives streaks and shadows on the illuminated surface, which are just as bad in effect as a light that flickers. The E-M lamp uses a single Mazda tungsten lamp surrounded by a Eukronane diffusing globe. Above this is placed a handsome shade or reflector formed of leaded glass.

There is a simple device for turning down the light of the electric lamp when it is not desired to perform careful eye work.



Part of the Private Plant Which Was Abandoned in the Hartford Building

out a lamp, often the lamp is so high that the person using it has to look up at the shade or globe, which is often in a little space, thus causing a strain on the making of the lamp. The lamp is so high that the person using it has to look up at the shade or globe, which is often in a little space, thus causing a strain on the making of the lamp. The lamp is so high that the person using it has to look up at the shade or globe, which is often in a little space, thus causing a strain on the making of the lamp.

The E-M lamp is on exhibition at the Forty-Second Street showrooms of the New York Edison Company and will be shown at the coming Fourth Annual New York Electrical Convention.

The Electric Motor and Equipment Company, of Newark, N. J., are the manufacturers.

Have you an electric fan?

## Electric Japanning Oven

**T**HE General Typewriter Exchange, 21 Murray Street, have installed two electric japanning ovens capable of holding twenty machines each. The temperature of the ovens can be raised to 220 degrees Fahrenheit in thirty minutes and maintain it for four hours with a loss of but ten degrees, the current being turned off from the time the desired temperature is reached.

The company states that they can do one hundred per cent more work since the installation of the electric ovens, and their insurance is \$500 per year less than formerly.

## Electric Lighting in Groceries and Provision Stores

**I**N a store where perishable commodities are kept it is essential to maintain a pure atmosphere, which is insured when electric lighting and electric power are used. A pure atmosphere preserves provisions in a perfectly sound condition and prevents serious losses from the fermenting of jams and canned goods. Moist sugars, dried fruits, cheeses and soups do **not** lose their weight because of overheating. Bacon never becomes discolored. With electric light provisions **can** be stored away at any height without risk of deterioration. The whole store is sweeter and cleaner.



Electric Japanning Oven at the General Typewriter Exchange, 21 Murray Street,  
Operated by Edison Service



## Show Window Illumination *from an Economical Standpoint*

**I**T is of paramount importance that a show window of the present day be well lighted, in order that the space devoted to it shall bring the greatest returns possible

practice to use a large unit placed in the center of the window, which was relied upon by the merchant to secure all the light he considered necessary. He also figured that



A Good Example of Show Window and Interior Store Illumination

for the money invested in this particular phase of the business. It is safe to say that fifty per cent of the actual business done is through this source.

In the past it has been common

this would to a certain extent light the street immediately in front of the store.

This may have been of some service, but should he confine himself to lighting the window alone, a

greater contrast would be noticeable. The average passer-by who admires the window does not wish to be in the limelight, as it were, but prefers to be obscured as much as possible and admire the goods displayed.

The main object of store-window lighting is to throw the light on the

to run a conduit horizontally along the top of the window, where the ceiling and the window-pane form an angle. Outlets can be placed on the conduit having any desirable spacing. A good standard is to place them twelve inches apart. By this method the quantity of light can easily be changed to accommo-



**Electric Signs and Well Lighted Stores are the Best Kind of Advertising**

goods in a manner that is pleasing and restful to the eye of the observer. This is accomplished by having the light sources concealed from view, and at the same time so located that they can be used to the best advantage.

The most economical and effective method of accomplishing this is

date the varying conditions. If only a few light articles are to be exhibited the units can be smaller than if dark articles and more of them are to be shown.

By means of a specially designed reflector, it is possible to distribute and concentrate light rays at any angle desired.

# The Helios Economical Lighting System

THE Helios Economic Lighting System is designed for use with hand-regulated arc lamps of all kinds, such as moving pictures, photo-engraving and stereopticon arc lamps and searchlights. With this system rheostats ordinarily used are dispensed with, greatly increasing the operating efficiency and eliminating the heat attendant upon their use.

Of the total amount of current consumed in moving picture or similar lamps, from fifty-nine per cent to ninety per cent is wasted. With a lamp operating on a 110-volt circuit the Helios System saves from

600 to 5,650 watts per hour, according to the size of the machine used, they being made in five sizes. With a lamp operating on a 550-volt circuit, the saving in watts amounts to from 10,200 to 56,000 watts per hour.

The apparatus comprising the Helios System consists of a standard motor and generator coupled together and provided with a small operating switchboard. After bringing the motor up to speed in the usual manner, the generator will supply current to the lamp, which is operated exactly as it would be if a rheostat were used. The genera-

tor needs no protective devices, as it will stand a short circuit indefinitely. In case the operator leaves the machine running with the carbons in the lamp in contact, the machine will relieve itself of the load within a period of fifteen minutes, due to the gradual burning away of the carbons, and the resultant lengthening of the arc and final rupture.

A field regulator is mounted on the board to control the



Switchboard of Helios Economic Lighting System

voltage at the lamp terminals. Once adjusted to suit the conditions the regulator does not need to be changed unless it is at the operator's discretion.

The system is made by the Helios Manufacturing Company Philadelphia, with New York offices in the *World* Building.



Motor-Generator With Switchboard Attached,  
Helios Economic Lighting System.

## Electricity vs Gasoline in a Laundry

**A** LAUNDRY in the Middle West is equipped entirely with machinery that is either electrically heated or electrically operated. The electrical equipment of the laundry was decided upon as being cheaper than gasoline-heated apparatus, beside having the obvious advantages of cleanliness, simplicity and safety.

## ELECTRIC CARS ECONOMICAL.

### Recent Run of Healey Machine to Philadelphia Proves Its Value.

Electrically propelled vehicles have reached a stage of perfection that is creating considerable interest in automobile circles. The possibilities of the electric machine were recently demonstrated in the run of the Healey car from New York to Philadelphia in seven and a half hours with enough current remaining in the batteries for an additional ten to fifteen miles. This machine was a fully equipped full-sized brougham and weighed, with passengers, 3,840 pounds. The average speed for the ninety odd miles being fourteen miles an hour.

The future of the electric car seems assured. Experiments during the past decade have led to a steady advance in its mechanical construction and can be run at an exceptionally low cost of maintenance. The Healey car contains all the essentials of the perfect car, and Gen. Healey, the head of the manufacturing company, believes it has a big future. In describing the car yesterday he said it was not only ideal for city and suburban service, but is clean, quiet, and luxurious, equal if not greater to cars of other motive power. He pointed out many of the advantages and features. The driving and steering of the car are combined in the forward wheels in a new and novel manner.

The motor with single gear reduction is located under the driver's footboard, thus giving ample space for batteries under the front and rear seats, without affecting the body design. This equalization of weight and simplicity of mechanical construction results in high efficiency. The bearings are so constructed that friction is reduced almost to a minimum and the waste of power is largely eliminated.

Done with Match from B-

Clipping from the New York Times

## Electric Refrigeration

**W**HY be dependent upon ice with the dirt and slop when a small or large electrically operated refrigerating outfit can be installed and operated more economically and satisfactorily?

These outfits are made to fill the demands of the small home or the largest store. They require little attention and are cleanly.



The Public Bank of New York, Corner of Delancey and Ludlow Streets, Supplied With Electric Current from the Edison System

# The Public Bank of New York

ONE of the latest acquisitions to the large number of modern bank buildings in the city is the new home of the Public Bank of New York, located at the corner of Delancey and Ludlow Streets.

paying departments and the currency vault.

Above, on the first mezzanine floor, are situated the officers, note tellers and foreign departments. There is a second mezzanine floor for the



Brilliant and Attractive Interior of the Public Bank

The bank occupies the basement and four lower floors of this substantial structure, and is furnished with the best and most up-to-date accessories obtainable. On the main floor are located the receiving and

bookkeepers, stenographers and directors' room. The book vault is located in the basement. Every inch of interior space has been utilized in the best possible way, with the result that the banking rooms are spa-

cious, well lighted, and present an attractive appearance.

Mr Joseph S Marcus, the bank's founder, is president, and Mr Joseph J Bach is vice-president and cashier.

### Electric Welding

**E**LECTRIC welding meets a long-felt want in many branches of industrial work, the weld being effected quickly and uniformly

good advertising medium as well, is illustrated by the new bank buildings recently erected in this city.

Last month we illustrated and described the new Union Dime Savings Bank Building, with its large electrical equipment. In this issue the new building of the Public Bank of New York is shown, and the night view gives an excellent idea of the illumination and its effects as seen from the exterior.



The Public Bank is a Brilliant Sight at Night

without risk of over-heating, or the consequent formation of an excess of scale or a deterioration of the physical properties of the materials welded.

### Electric Lighting in Banks

**T**HAT conservative institutions, like banking houses, are awakening to the fact that plenty of electric lights not only add to the comfort of employees, but serve as a

the two coming in t.  
one directory, and that it has been  
ected to unfair competition.

**Damages for Superheated Water Bag:**  
A Supreme Court jury before Justice  
Gavegan assessed \$250 damages against  
the Post-Graduate Hospital because a  
nurse scorched the feet of Mrs. John J.  
Shea with a superheated hot-water bag.

An electric washing machine makes laundry work easy. Add an electric ironer and it becomes a pleasure.

## Showing What Some of Our Scotch Friends Think of Us

**I**N the Waterside Station of the New York Edison Company stands a peculiar tower of steel, about thirty feet high and about fifteen feet in diameter. There is nothing remarkable about the outward appearance of this column of burnished metal, and few would recognize it as the largest steam engine in the world. From the outside it resembles a small water tank, but within the hollow steel shell the power of 20,000 horses is concentrated, for this is the new turbine steam engine, the most powerful of its kind. Inside the steel column are great discs edged with buckets, against which the expanding steam strikes, and nothing that was ever set on wheels travels with such enormous speed as these discs of steel. Each of these wheels is fourteen feet eight inches in diameter, and each wheel under a pressure of 180 pounds of steam to the square inch makes 750 revolutions a minute. Putting the wheel upon a rail and giving it 750 revolutions a minute would make the modern automobile look nearly stationary. Twenty thousand horses, straining every muscle, within such a small space! This in itself is startling, but, when one comes to figure out just how much work this giant engine is capable of doing, the result is almost beyond belief. This great turbine engine running at full speed, is capable of producing enough energy to raise ten seventeen-story business buildings sixty feet an hour until at the end of a

## ELECTRIC KEPT UP TO GASOLINE CARS

Whatever prejudice still exists against electric cars, particularly on the score of mileage, must be greatly lessened by the remarkable performance of the Detroit Electric on Saturday, April 30. The occasion was the reliability run of the Quaker City Motor Club to Atlantic City. The Detroit Electric covered the course in three hours and fifty-five minutes—only nineteen minutes short of the time made by the gasoline winner of the contest. And this remarkable feat was accomplished by the Detroit with a perfect score—no accidents—not even a puncture. The Philadelphia representatives of the car, the J. C. Parker & Son Company, are greatly encouraged over the outlook for the Detroit Electric in this city, and have every assurance that the long existing feeling against electric is about over, and that the electric car is "coming into its own" at last.

From a Philadelphia Paper

ten-hour day they would be 600 feet above the pavement. This giant engine is used to turn a great electrical generator which is also concealed within the steel cylinder. This generator changes the 20,000 steam horse-power to electrical horse-power so that it can be distributed about the great city of New York for light and power and heat. This single unit will supply current for 250,000 incandescent lamps, or for 31,000 arc lamps, sufficient to light 900 miles of streets, which would reach from New York to Chicago.

*The Family Herald  
Edinburgh, Scotland*

## Electric Melting Pots

**E**LECTRIC melting pots are exceedingly useful for melting small quantities of solder, babbitt metal and similar alloys which have hitherto required the use of charcoal or gasoline furnaces, which are difficult to maintain at a temperature where the least amount of oxide is formed and yet where the metal is kept in the proper shape for use.



## The Edison Monthly

### The Weser Player Piano

**M**ESSRS WESER BROTHERS, of New York City, was one of the first piano concerns in the country to build interior player pianos and to turn out an electrically controlled instrument. The latest creation is a combination foot pedal and electric player piano which is now on exhibition at the showrooms of The New York Edison Company, 124 West Forty-second Street.

This unique piano can be played by hand in the regular way, by foot pedal and the perforated music roll like the regular player piano, by electricity with an ordinary lamp socket connection and by foot pedal and electricity at the same time.

There are incorporated in this instrument three complete pianos in one,

and provision is made for the orchestra attachment by which the tone and effect of the banjo, mandolin, guitar, harp or zither can be imitated.

When this instrument is electrically operated the composition in the music roll is played with absolutely perfect expression and time, giving diminuendo and crescendo effects, and fast and slow tempo with the graceful ease and accuracy of the most talented pianist. The expression devices on this instrument are automatic, and when the piano is being played by electricity the most trained musical ear cannot detect whether the instrument is being played by an accomplished pianist or otherwise. After the composition or selection is played, the music roll will rewind automatically and play the selection over again.



The Weser Player Piano

# The Edison Monthly



July

1910

VOLUME III

NUMBER 2

## CONTENTS

	Page
Editorial - - - - -	34
Fever Registered by Electricity - - - - -	36
Experiments in Electrifying the N Y Elevated Roads - - - - -	37
Side Lights on the Electric Vehicle Situation - - - - -	40
The Horse and the Electric - - - - -	43
Speed Classification of Electric Motors - - - - -	44
Electrically Heated Matrix Driers - - - - -	45
Electric Heating for Medical Purposes - - - - -	45
A New Electric Hammer - - - - -	46
Lighting of Floral Stores - - - - -	47
Physiological Effect of Electro-Magnetism - - - - -	48
The Production and Use of Ozone - - - - -	50
The Sturtevant Dust Blowing Set - - - - -	51
Electric Power in Theatres - - - - -	53
Electric Drive in Textile Mills - - - - -	55
Electro-Medical Apparatus in the Fango Institute - - - - -	56
New Type of Gearing for Motor-Driven Machinery - - - - -	57
A Novel Use for Telephones - - - - -	59
Immense Electric Sign Supplied by The Edison System - - - - -	60
Private Plant Removed from Bakery - - - - -	62

# Editorial

## *The Edison Monthly*

Published by

## *The New York Edison Company*

General Offices

55 Duane Street New York City

President

ANTHONY N BRADY, 54 Wall Street

Treasurer

JOSEPH WILLIAMS, 55 Duane Street

Secretary

LEWIS B GAWTRY, 4 Irving Place

Active preparations are under way for the coming Fourth Annual New York Electrical Show, to be held in Madison Square Garden October 10th to 20th. It seemed at the time that the last year's show was the acme of the show art, but this year's show promises to eclipse all previous efforts.

The management, in the expectation of a great increase in the number of exhibitors, has decided to provide some spaces smaller than heretofore. Another innovation will be the occupancy of the mezzanines, or arena galleries, by the large electric light and power companies of New York City, leaving the more desirable space of the main floor to the manufacturing and selling companies.

The Central Station Companies will exhibit no apparatus, confining themselves to reception rooms, with telephone and writing facilities, the distribution of advertising literature, negotiation of contracts and personal meetings between the public and their representatives.

When desired, visitors will be escorted to the various exhibits for the purpose of explaining their more important features and aiding in the sale and use of apparatus exhibited.

As a further innovation, the Fourth Annual Electrical Show will undertake to display and provide representatives for any exhibitor who cannot send personal representatives to New York. This will be done at actual cost to the Electrical Show management, which will assign a representative, who, attending exclusively to the display of the exhibitor, will make daily reports covering attendance, inquiries, sales and any other items of interest.

We have called attention from time to time in these columns to the lack of suitable electrical connections in the kitchens of many apartments. The use of electric irons and electric cooking utensils is becoming so universal that connections should be placed in the kitchen and bathroom, as they are just as much a part of the equipment as water connections.

Suitable outlets can be located at convenient spots at very little cost when the building is erected and should receive the attention of every architect.

In Canton, Ohio, recently, thirty persons lost their lives and fifty more persons were injured by the explosion of seven high-pressure

boilers in the factory of the American Tin Plate Company. The explosion left the big plant in a state of ruin and it is practically a total loss. A mere eggshell of the building was left. The horror of the calamity could only be appreciated by those who witnessed the effects.

Had the company used Central Station Service the accident would have been averted and there would have been no loss of life and property. It is plainly apparent that no matter how skilfully high-pressure boilers are handled there is always danger attending their use.

Many thousands of dollars are lost annually through such accidents as the one at Canton. The moral is obvious, use Central Station Service.

—

A well-lighted front and entrance of an apartment building not only adds much to its appearance at night but, from a commercial standpoint, is an excellent feature. People who are looking for apartments are instinctively attracted by a brightly lighted entrance. It is noticeable in many portions of the city that the front lights of apartment buildings are not used where illumination from a street light reaches the front of the building. This appears to be false economy on the part of the owner, who should realize that plenty of light is an excellent advertisement for his building as well as for business houses.

—

One of the editors of THE MONTHLY recently visited a large laundry that had not as yet been

electrically equipped. The vast difference between it and those using electricity for heat and power never seemed so pronounced.

A multitude of overhead belting and shafting was apparent everywhere, with the usual annoyance from dust and dirt.

The time required in hand ironing to walk backward and forward from the heater when the irons became cool was apparent.

Compare this with the use of electricity. The irons always maintain the desired temperature, and no time is wasted in changing for a heated iron when the one in use is cool. The comfort of the employees is another feature. The electric iron does not radiate heat like a stove, but maintains the temperature at the point of contact with the work.

Where electric drive is used the overhead belting and shafting are eliminated, allowing the natural light to penetrate to all parts of the room and permitting a degree of cleanliness that would be impossible where mechanical power is used.

—

The electric vehicle continues to make excellent records for long distance runs. It can no longer be considered a city machine, for it has shown its capability of standing up with gasoline cars in cross-country travel.

A recent run of an electric from New York to Philadelphia, described in the June MONTHLY, made a record for economy and general excellent operation that should convince the most skeptical people of the wide radius of the electric operation.

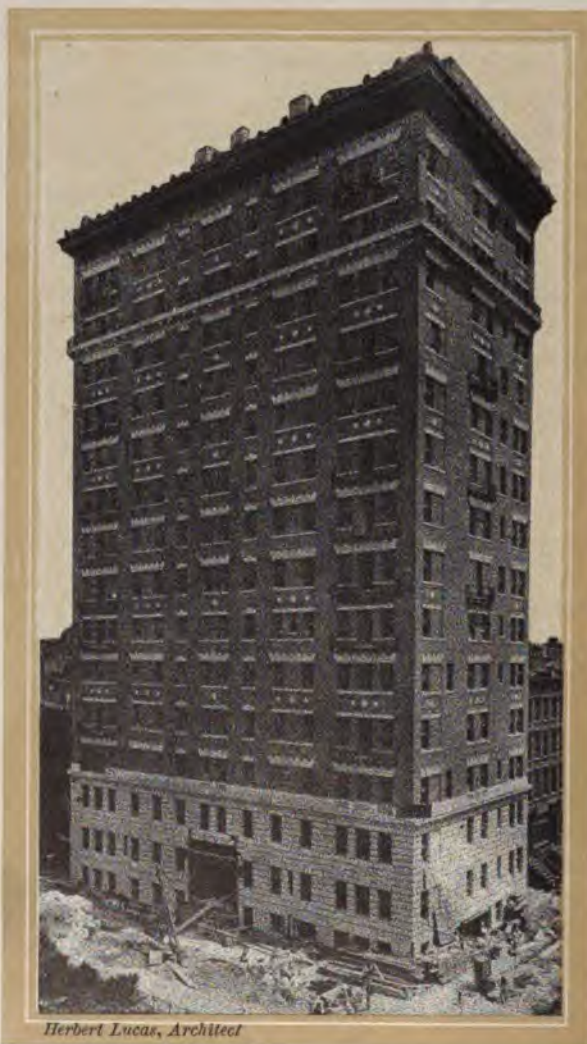
## Fever Registered by Electricity

**E**LECTRICAL apparatus for registering the degrees of fever is now being constructed in Germany. It consists essentially of a platinum spiral, which constitutes an element of resistance; a measuring outfit and a registering milli-voltmeter. The platinum spiral is placed in the armpit of a sick person, for instance, and attached by a double conductor to the milli-voltmeter in a bridge circuit. The current necessary for making the measurements is furnished by a small four-volt accumulator. The indications of the milli-voltmeter are due to changes in resistance of the platinum spiral and correspond to variations of temperature in the body of the patient.

In one form of this arrangement the movable equipment of the milli-voltmeter traces a curve on a paper band moved by clockwork.

Fever curves obtained in this manner in the Medical Clinic of Berlin have shown clearly the action of drugs on a patient, as the injection of tuberculine, the administration of antipyrine, etc. The registering apparatus may be given different forms, accord-

ing to the use for which it is intended. The platinum spiral is enclosed in a quartz glass tube in order to make it absolutely invariable. We are indebted to the *Electrical Review and Western Electrician* for the information contained in this article.



Herbert Lucas, Architect

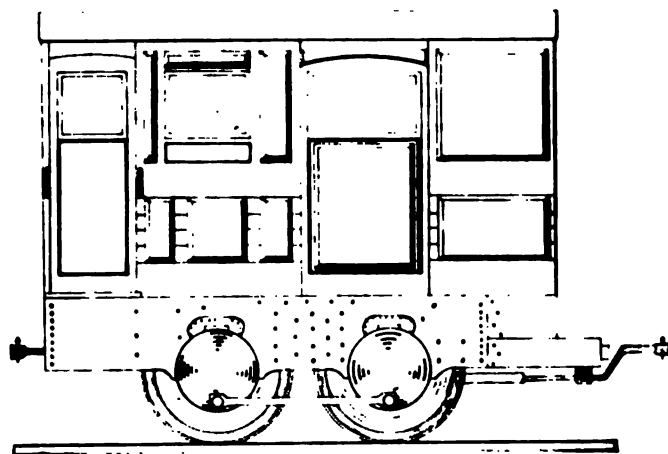
Large New Loft Building at 535 Park Avenue that will use Edison Service for 2,000 incandescents and 60 h p in motors

# Experiments in Electrifying the New York Elevated Roads

**T**HE eminently successful operation of electric cars on the elevated roads and in the subways of New York and other cities is now taken as a matter of course. Little thought is given to the countless failures and heart-breaking attempts at success that the pioneers in electric railroading encountered in the early days.

In the fall of 1886, nearly twenty-four years ago, the Doft Company, that was prominent in electrical work in those days, performed what was then thought to be very successful experiments. An electric locomotive weighing some nine tons was built, and tests were made on the Ninth Avenue Elevated Road. A section about two miles in length, between Fourteenth and Fifth Streets, was allotted for experiments during nighttime, when no other trains were in service. The tests at that time demonstrated conclusively the ability of the locomotive to do

the work. How it was done was another question. The motor was of about seventy-five horse-power and proved to be weak in both mechanical and electrical construction. This is not to be wondered at, as it was the first ever built.



Sketch Made from an Old Print. Electric locomotive "Benjamin Franklin" used in the early experiments at electrifying the New York elevated roads. This locomotive was tested in the fall and early winter of 1886 on the Ninth Avenue Elevated line and was built by the Doft Electric Light Company. It weighed approximately nine tons and was equipped with a single seventy-five horse-power motor. The accompanying article gives the details of test

After improving its system, the Doft Company carried out another series of experiments. The qualities which it was necessary to demonstrate were tractive capability, speed, mobility and handiness. Deliberate and exhaustive tests were applied which were considered to have resulted in fully establishing the locomotive's excellence in these respects. The tests for tractive capability were cumulative in their method

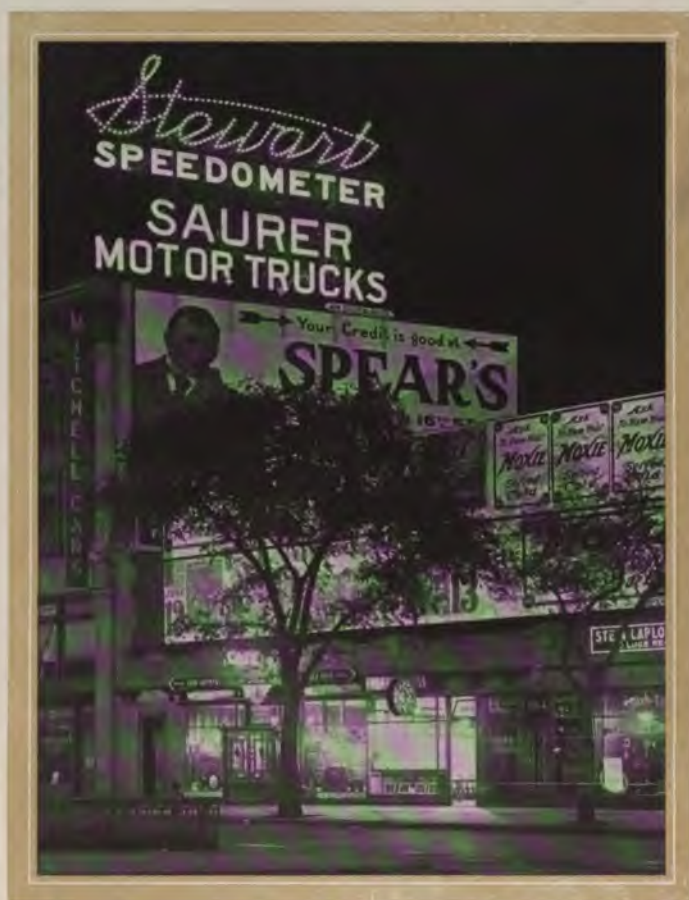


and were abandoned only when the load drawn exceeded by forty per cent that which the motor was guaranteed to pull, and up to this limit there was not the faintest intimation of strain of any kind. On the con-

the maximum gradient, nearly two per cent, at a speed of seven and one-half miles an hour, developing 120 horse-power. Another achievement with this train consisted of backing it from the main line to a siding and nec-

essarily around the reserve curve connecting them upon a gradient of fifty-three feet to the mile.

The trials for speed under loads fell upon the worst nights of the stormy weather of the early winter, but speeds were obtained equaling and exceeding the schedule of steam locomotives at ordinary service. With the standard train of four cars and a little over half of the possible seated load a speed of fifteen and one-quarter miles an hour was obtained, an excess of two miles an hour over the regular steam



A New Electric Sign at Broadway and Sixty-second Street

trary, everything indicated that the motor was working well within its ultimate capacity, and its prompt, responsive action in starting, acceleration and stopping was a surprise to the most sanguine.

Eight empty cars were taken up

traction speed, and this without effort or resort to ample means still available for its increase. On two occasions with three empty cars speeds of thirty miles an hour were obtained without taxing the motor in the slightest degree. The speed

trials might have been carried to a higher degree, but there was a strong unwillingness to trespass longer than possible upon the

necessary to shunt the train on a siding to permit the locomotive to be in front on the return trip. The standard train on the Ninth Avenue

line at that time was composed of four cars, and the sidings were built of a corresponding length. In looking over the situation before shunting, it was discovered that the siding was only four feet longer than the train, and great nicety of manipulation would be necessary to accomplish it, as the locomotive was unprovided with means for working the air-brakes, leaving the whole train entirely dependent upon hand-brakes operated by two men. The attempt was made, however, and by skilful handling of the locomotive and the zealous use of the ordinary

brakes the shunt was successfully accomplished, the train coming to a complete stop within the narrow limits of four feet.

Have you an electric fan?



A New Electric Flasher Sign at Broadway and Forty-sixth Street. This sign produces a very realistic effect of a waving flag

courtesy of the elevated railway officials.

During the preliminary trials, while handling a train of six empty cars, a total load of ninety tons, it became



# Side Lights on the Electric Vehicle Situation

AT a recent meeting of the Electric Vehicle & Central Station Association Mr Howard S Knowlton read a paper on the above subject. The following ex-

ent absurd position in the machinery of commerce. The electric vehicle industry is already taking advantage of scientific analyses of conditions surrounding the design and



The Speedway looking North from Highbridge Showing the Arc Light Posts Installed by the New York Edison Company

cerpts we believe will interest users of automobiles as well as horse-drawn vehicles:

Mr Knowlton pointed out that economic forces of power will in time drive the horse from his pres-

service of railway motors. Improvements in design of batteries and methods of maintenance are no less important, but apart from the details of apparatus stands out the compelling fact that the equipment

now on the market can be counted upon week in and week out to handle its loads more rapidly than is possible with animal traction under the most favorable conditions.

The author further urged that the compact assembly of power under the electric vehicle affords an increase in acceleration, and the latter

with the cheapness, economy, convenience and cleanliness of electricity. In competition with gasoline trucks and delivery wagons the electric vehicle advocate often finds himself confronted with the question of maximum speed. The future owner tends to lay too much stress upon this, for in city and suburban



View of Kingsbridge, Showing the Arc Lighting

is the key of modern rapid transit. This is the great point from which to work in introducing commercial vehicle service. Schedule speed, which includes stops, is far more important than maximum speed. The horse is out of the race when it comes to handling a given volume of traffic in a given time, compared

service the maintenance of a high average speed, including stops, is the hub of the whole question. In narrow, crowded streets it is almost always impossible to utilize the full maximum speed of a vehicle. Quick starting and rapid turning are far more important. The requirements of city and suburban service may



## The Edison Monthly

be met by a schedule speed, including stops, of between five and ten miles per hour, and the ability of the machine to run from twelve to twenty miles per hour cuts little figure. The electric vehicle suffers in no wise from lack of maximum speed capacity in urban service, compared with the gasoline car, and in the outer suburban field, where faster running is admissible, it is simply a question of whether the volume of traffic to be handled is worth the added toll in repairs which fast running exacts. A lower maximum speed means reduced tire wear and decreased depreciation of machinery. The multiplicity of parts in the gasoline car fits poorly into a scheme of high-

speed operation. The acceleration powers of the electric motor compared with the reciprocating engine enable the former to meet the closest urban competition, both in the commercial and pleasure fields.

For quick deliveries the electric automobile is the best.



A General Vehicle Company's Electric Delivery Wagon Used by a Large Candy Company



Electric Truck Used by the Wisconsin Condensed Milk Company. Made by the General Vehicle Company



One of the General Vehicle Company's Electric Trucks Used by the H B Claflin Company

## The Horse and the Electric

**D**URING the coming summer, when the skies have a brassy hue and the asphalt pavement shows the imprint of our heels after we walk over it, a painful spectacle will again present itself to our view—that of the faithful horse making a heart-breaking struggle to produce the same number of ton miles for his master that he did in the cool weather. It is painful indeed to watch the poor animal as he unprotestingly contends with conditions over which he has no control, doing his level best to the last ounce of his strength, finally slipping in his tracks, perhaps mired, a sacrifice that could have been avoided.

Turning from the expiring horse we observe with relief an electric truck, piled high with merchandise, smoothly coasting to the curb and

stopping exactly where the driver intends—it should. The man swings lightly off and we stop him to ask a few questions. He is not surly and uncommunicative—evidently there has been nothing to try his temper and patience. He informs us that the operation of his truck is always as smooth

as we have noted; that the battery is good for fifteen miles more than he has ever had to accomplish in a day; that the speed is nine miles an hour; that his firm uses six electric machines of varying capacities, and that more than twice that number of horse teams were maintained last year, necessitating the lease of another and larger building beside the store for stabling. The electric machines were housed in the shipping room next to the store, which statement would indicate a saving.

Deciding that the electric vehicle looks like an economical proposition, we are sufficiently interested to make further investigation. The driver of the truck furnishes us with the address of his firm and we interview the transportation manager on the premises. He furnishes us with the following table containing these significant facts and figures:

## THE HORSE VS THE ELECTRIC

## WORK DONE AND COSTS

	—1 Ton—		—2 Tons—		—3½ Tons—	
	Horse	Electric	Horse	Electric	Horse	Electric
Miles per day.....	17	35	16	30	15	27
Ton miles per day..	17	35	32	60	52	94
Cost per day.....	\$7.13	\$6.89	\$8.37	\$7.99	\$8.41	\$9.57
Cost per mile.....	.419	.20	.523	.27	.56	.35
Cost per ton mile...	.419	.20	.261	.135	.162	.10

He stated that two horse wagons were displaced by one electric, with considerable saving. The firm was very proud of its horse equipment and spent a good deal of money in keeping it in good shape, depending on the advertising resulting from smart equipment. With the electric they obtained the same pub-

licity for about half the money previously spent.

In point of practicability, economy and reliability, the electric has proved its superiority. The merchant who uses electric vehicles not only does a humane act, but conducts his business in a manner decidedly in favor of his interests.



Electric Iron Installation at Oppenheimer, Franc & Langsdorf's, 23 East Twenty-sixth Street

### Speed Classification of Electric Motors

THE electric motor may assume practically an infinite number of different forms and may be applied to an almost unlimited number of uses. Each motor, however, possesses certain in-

herent speed characteristics, by means of which it can be classified in one of several groups. As an example, the Westinghouse Electric and Manufacturing Company classify their line of motors as follows:

**Constant Speed Motors.**—Motors in which the speed is either constant or does not materially vary, such as

synchronous motors, induction motors with small slip, ordinary direct-current shunt motors and direct-current compound-wound motors, the no load speed of which is not more than 20 per cent higher than the full load speed.

**Multispeed Motors.**—Motors which can be operated at any one of several distinct speeds, these speeds being practically independent of the load, such as direct-current motors with two armature windings and induction motors with primary windings capable of being grouped so as to form different numbers of poles.

**Adjustable Speed Motors.**—Shunt-wound motors in which the speed can be varied gradually over a considerable range, but when once adjusted, remains practically unaffected by the load, such as motors designed for a considerable range of speed by field variation.

Compound-wound motors in which the speed can be varied gradually over a considerable range, as in shunt-wound motors.

When once adjusted, varies with the load, similar to compound-wound constant-speed motors or varying speed motors, depending upon the percentage of compounding.

**Varying Speed Motors.**—Motors in which the speed varies with the load, decreasing when the load increases, such as series motors and heavily compounded motors. Examples of heavily compounded motors are those designed for bending rail service and mill service, in which a shunt winding is provided only to limit the light load operating speed.

## Electrically Heated Matrix Driers

**E**LECTRICALLY heated matrix driers have been used successfully by a number of large newspapers and have fully demonstrated that the time required to dry a single matrix may be cut down to less than three minutes. The best time with steam heaters has been from five to six minutes.

The electric heater operates at a temperature higher than can be secured by steam at a safe pressure, but is under such close control that a temperature sufficient to injure the type is not reached. As the temperature is uniform all over the bed of the machine and is not subject to sudden variations, conditions which make direct heating by other means impractical are avoided.

## Electric Heating for Medical Purposes

**E**LECTRIC heat can be more readily and conveniently employed for medical purposes, such as cauterizing operations, than any other form of heat because it can be kept under perfect control and can be applied without loss of time. Electric heat is also a great convenience for sterilizing clinical thermometers, needles, dentists' lancets, and other surgical instruments.

There has been a great demand for these in hospital work. The electric bronchitis kettle is a valuable invention, as is the electric heating pad, which replaces the old-fashioned hot water bottle.

---

Edison Service for light and power.



# A New Electric Hammer

**T**HE Electro-Magnetic Tool Company of Chicago is placing on the market a new electric hammer, known as its Model 5, which possesses many unique features.

The principle upon which the Model 5 hammer operates is entirely new, and in the design of this tool is found none of those inherent weaknesses which have mitigated against the success of other electrical hammers.

This principle consists of a magnetic cushion interposed between a hammer element and the motor, which absorbs the sudden shock and strain incident to the delivery of the blow and the reciprocation of the plunger.

A motor (K) is installed in the upper section of the hammer frame (A), current being brought to it through the handle (G) and controlled by a switch located in this handle. On the end of the armature shaft, the pinion gear (N) meshes with the bevel gear (M) which is keyed to the crank shaft in the gear case (C).

From this crank shaft the connecting rod (E) extends to the sleeve (J). This sleeve (J) lies within the electro-magnet (H), which is firmly secured in the magnet frame (B). The hammer element (O) lies within the sleeve (J), and is not mechanically connected to any portion of the hammer. The sleeve (J) is open in the center, the two ends being connected by three small struts. The principle of operation may briefly be described as follows:

Current passing through the solenoid (H) produces a powerful magnetic field. The path of this field is through the magnet casing (B), the steel heads (LL'), through the sleeve



The Electro-Magnetic Company's Model 5  
Electric Hammer

(J) until the opening is reached, thence into the plunger (O), back into the other portion of the sleeve to completion. The plunger, being free to move, will tend to take up a position exactly midway of the sleeve. This sleeve, however, is reciprocated

by the action of the motor through the gears and connecting rod. The sleeve, starting on its forward stroke, shifts the magnetic field in respect to the plunger, moving away from the normal position until it has reached a point where the unbalanced magnetic pull is sufficient to overcome the inertia of this element. The plunger

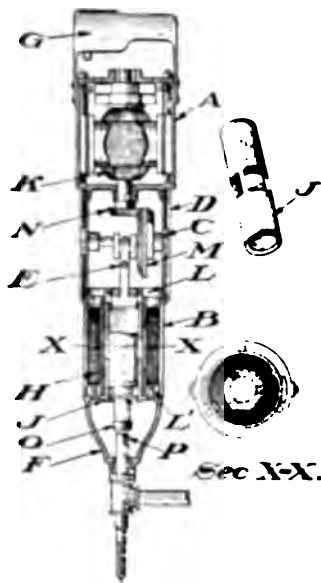
the sleeve. On its forward flight it impinges upon the drill shank (P), located in the nose-piece (F). On its return flight it is automatically brought to rest by the shifting of the magnetic field; the movement of the sleeve giving the same effect as if the entire magnet were mechanically reciprocated.

The elasticity of this magnetic connection between the sleeve and plunger completely absorbs the sudden jars and strains incident to the delivery of the blow and the reciprocation of the plunger, giving a perfect magnetic cushion, superior to that produced in the air hammer by early admission of air.

As the electric circuit in the hammer remains unbroken and always in the same direction, make and break contacts, reversing devices, and the like, are eliminated. The entire control of the tool is located in the switch placed in the handle, and this switch is operated only to start or stop the tool. The motor and solenoid being connected in parallel, the breaking of the circuit in stopping the drill automatically short circuits the electro-magnet through the motor, thus preventing any inductive kick from the coil.

## Lighting of Floral Stores

NO one can pass a florist's window that is skilfully lighted by electric lamps. The effect is fairy-like, and electric light does not harm any kind of plant or flower, even the most delicate ferns being unaffected by it; the stock therefore remains fresh. The mercury vapor lamp produces some beautiful effects when used to illuminate green foliage.



Sectional View of Electro-Magnetic Tool  
Company's Model 5 Electric Hammer

will then follow the sleeve on its stroke in an attempt to assume its normal position, that is exactly midway of the sleeve. Before this has been accomplished, however, the sleeve has started upon its return and the magnetic pull is gradually concentrated upon the other end of the plunger, until its motion is likewise reversed. The hammer element, therefore, flies first one way and then another in an attempt to keep constantly midway of



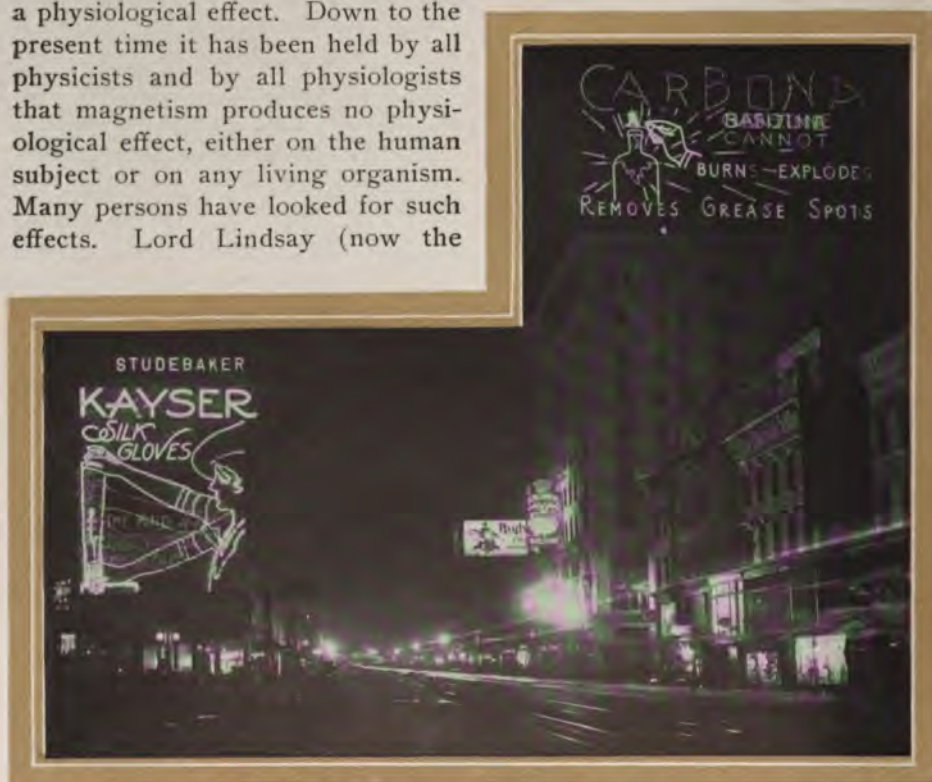
# Physiological Effect of Electro-Magnetism

A RECENT article in the *Electrical World* gave details of some interesting experiments on the physiological effect of an electro-magnetic field set up by alternating currents. The following paragraphs are quoted from the article:

"In a paper presented April 14 before the Royal Society, Prof S P Thompson gave the result of some experiments showing that an alternating magnetic field may produce a physiological effect. Down to the present time it has been held by all physicists and by all physiologists that magnetism produces no physiological effect, either on the human subject or on any living organism. Many persons have looked for such effects. Lord Lindsay (now the

Earl of Crawford), assisted by Mr Cromwell F Varley, constructed many years ago an enormous electromagnet, now in the Observatory at Edinburgh, so large that it would admit between its poles the head of any person who wished to test whether a strong magnetic field would have any sensible effect. Nothing whatever was perceived as the result.

"Professor Thompson, however,



Some New Electric Flasher Signs on Broadway, Looking North from Times Square



An Excellent Example of Window Lighting at the College Clothes Shop, 119 West Forty-second Street

recently succeeded in demonstrating a real physiological effect due to magnetism. Some six years ago, when experimenting with an alternating electro-magnet which had been constructed for showing Prof Elihu Thomson's well-known experiments on the repulsion of copper rings, he observed a faint visual effect when his forehead was placed close to the magnet. Recently, incited thereto by finding Lord Kelvin's mention of the negative results in Lord Crawford's experiments, he further explored the matter, and found a means of producing the visual effect (which is subjective and physiological) in a way that succeeds with every person on whom it has yet been tried.

"An alternating magnetic field of sufficient intensity and extent was produced by passing an alternating

electric current around a specially constructed magnetizing coil.

"On inserting the head into the interior of the coil in the dark, or with the eyes closed, there is perceived over the whole region of vision a faint, flickering illumination, colorless or of a slightly bluish tint. The period of the flicker is not well defined. It does not seem to be the same over the whole region of vision at the same time, nor is it equally bright over the whole region of vision, but is somewhat brighter in the peripheral region than in the central parts. Even in daylight, with the eyes open, one is conscious of a sensation of flicker superposed upon the ordinary vision.

"The effect is diminished by lowering the intensity of the field, and increased by raising it. Attempts to discover whether the brightness of



the phenomenon stands in any relation to the direction of the axis of the field with respect to the directions of the principal axis of the skull have not yet revealed any definite result. It will be necessary to apply more intense fields than have yet been tried. No after-effects of any kind have been experienced, either by Professor Thompson or by any of the persons who have made the experiments with him."

### The Production and Use of Ozone

ONE of the greatest problems to-day confronting municipalities is the furnishing of pure water to their inhabitants. The supplying of pure air in places of public assemblage is also a matter of great importance, and much time and energy as well as money have been spent to find the best way to accomplish the desired results.

A recent issue of the *Electrical Review and Western Electrician* comments editorially on the production and use of ozone for purification purposes. It says:

"Ozone is an allotropic form of oxygen, containing three atoms

to the molecule; whereas in oxygen in its normal state a molecule contains two atoms. As a deodorizer and disinfectant, ozone is vastly superior to oxygen and possesses further the unique property of being a powerful germicide when present in the air in small quantities, while having no



The Dodd-Mead Company will use Edison Service exclusively for 2,000 incandescents and 95 horse-power in motors in their new building at Fourth Avenue and Thirtieth Street. Babb, Cook & Welch were the architects

deleterious effect on the higher forms of animal life.

"Ozone is produced in small quantities in nature principally by lightning discharges and evaporation of large water surfaces, and is particularly noticeable in mountainous districts (hence its popular name, 'mountain air') and at sea, especially after thunderstorms. It has a characteristic odor, hard to describe, but not likely to be forgotten when once perceived, and possesses the property to a remarkable degree of freshening and vitalizing a foul or vitiated atmosphere.

"It is only in the last few years that the peculiar properties of ozone have been applied commercially, the chief obstacle to its exploitation hitherto having been the difficulty of making the gas in pure form and in sufficient quantities for practical use.

"Ozone is now produced commercially by a cold, silent discharge of high-tension electricity. There have been many types of electric ozonizers recently invented. Several of these are already in successful commercial use for various purposes, some of which will be enumerated later. In some ozonizers the air is compressed to facilitate the production of the ozone, inasmuch as the latter occupies only two-thirds of the bulk of the same weight of oxygen under the same conditions of pressure and temperature. The presence of silicon fluoride tends to promote the generation of the gas, as does also water vapor in small quantities. The formation or presence of nitrous oxides is deleterious to the process and should be avoided. Excess moisture in the air to be ozonized is commonly removed by refrigeration of the air, and this further re-

tards the formation of the objectionable nitrous compounds. Even without taking any of these special precautions, however, a silent discharge of high-tension current will produce ozone of remarkable purity, one certain make of ozonizer for use in regenerating the air in public halls, large living rooms, hospitals, etc., being guaranteed to generate the gas with a purity of 98.5 per cent."

In conclusion, the article cites several instances where practical installations of ozonizers have been successfully used. Its general use as a purifying agent will undoubtedly increase greatly within a short time.



B F Sturtevant Co Dust Blower

## The Sturtevant Dust Blowing Set

**F**OR blowing out dirt and dust from machinery and from around motors, switchboards, shelving, and other places difficult or dangerous of access, the B F Sturtevant Company, Hyde Park, Mass., has brought out a new portable dust-blowing set. The device is electrically driven and weighs but fifty-five pounds. It is easily portable and is adapted for attachment to lighting sockets, so that the range

## The Edison Monthly

of its usefulness in a manufacturing plant or elsewhere is very broad.

While the blower does not give as high a pressure as the large compressed air systems, the larger volume of air accomplishes in most cases the same purpose without the hard, severe blast. There is an additional advantage derived from the larger volume of air in the speed

The set may also be employed as a vacuum cleaner for suction cleaning where a dust collector is not necessary. For this work one end of the hose is attached to the inlet of the fan, while the vacuum cleaner tool is fixed to the other. The fan will suck the dust through the wheel and discharge it at the outlet or through a hose connected thereto which is led



Tungsten Lighting at the Lenox Avenue Bowling Academy, 125th Street and Lenox Avenue

with which the work is accomplished.

The set includes a 12-foot length of  $1\frac{1}{4}$ -inch flexible reinforced air hose and a 10-inch tapered polished aluminum nozzle. A twenty-foot electric light cord is furnished, and in combination with the hose gives a working radius of thirty-two feet from a lighting socket.

out of doors. Care should be taken when using it as a vacuum cleaner in this way that no metal or other hard objects are picked up which would injure the fan, as there is no dust collector to catch anything which is taken up through the pipe.

An electric fan in the sleeping room insures a restful night's sleep.

## Electric Power in Theatres

**R**ECENT applications of electricity to power service in certain representative theatres lately completed in America furnish fresh examples of the dependence of the arts of amusement upon the engineer. Take away the details of building construction, the heating, ventilation, fire protection, sanitation and electric service from the modern playhouse, and there is left an ornamental shell pleasing to the artistic sense, but as unworkable as a machine tool without a driving shaft. Probably not more than one in a thousand of the patrons of the New Theatre at New York or the Boston Opera House gives a single thought to the acuteness with which engineering difficulties have been analyzed in order to promote the comfortable enjoyment of the illusions nightly displayed upon the stage, but if the work of the engineer is behind the scenes here in a double sense it is still of commanding interest, and this entirely apart from the technical specialty of utilizing natural forces upon the stage itself in connection with scenic portrayals.

Extreme variations in power requirements, combined with the ability to mass energy at specific points for particular occasions, characterize the theatrical service of the present time. The sectionalizing of the stage to permit various portions, singly or together, to be raised and lowered by the motor drive; installation of stage-turning equipment, enabling successive scenes to be set with a minimum lapse of time in

front of the curtain; operation of organ blowers, ventilation fans, curtains, passenger and freight elevators, special flashers, vacuum cleaners, air compressors, coal and ash hoists, and finally, the driving of dimmers in a multitude of combinations, disclose rapid strides within the past few years toward the freeing of the stage from all needless complications, the assuring of greater reliability at critical moments involving intricate property combinations, and the quickest possible response of equipment to the will of the stage manager and his associates.

The interconnection of the power service with the special tasks of stage lighting enables illumination effects to be secured with a precision hitherto lacking in hand operation of switches and dimmers. Subdivision of footlights and borders into appropriate sections and colors controlled by small motor-driven switch and dimmer shafts with interlocking arrangements, facilitates combinations of light gradation far above the range of practicable hand service, and with noteworthy economies in labor and space. Removal of dimmers and switches from the wings to fireproof compartments below or at the side of the stage minimizes the fire risk, and the introduction of the principles of remote control enables those responsible for the operation of the apparatus to remain in plain view of the stage without sacrificing convenience of manipulation.

The centralization of power distribution illustrated in the most modern theatres includes the mass-



## The Edison Monthly

ing of switch and fuse panels controlling numerous pockets, which furnish outlets for electrical service in the floor of the stage, in the boxes, fly galleries and auditorium and corridor sections of the house. Separation of lighting circuits to provide for partial control of illumination from the front of the theatre is a

minimum during the daytime and summer-cleaning periods, and the provision of emergency switching connections for the maintenance of continuous service under all anticipated conditions. The construction of the house with numerous floor levels and sloping tiers of seats complicates the wiring design almost



This Picture Gives Only a Faint Idea of the Beautiful Lighting Effects at the Park Hill Inn, Park Hill, Yonkers

necessity recognized by the public statutes. The installation of special lighting and electric heating service in dressing rooms, corridors, parlors and artists' quarters introduces many interesting problems in circuit arrangement, as do the requirements of orchestras situated on movable floors, the need of cutting down energy consumption to a

beyond belief. Finally, the introduction of numerous auxiliary telephonic and signal services at various voltages and diversified points ties the whole house together as a single organization responsive to the stage manager, and provides for the electrical transmission of orders, time-beating signals, emergency and routine information and instructions

with an ease and speed never realized in the playhouses of the previous generation. Such applications tend to eliminate friction, reduce the dangers of fire, keep down manual work to the minimum, shorten the time of preparation for acts, in-

### Electric Drive in Textile Mills

IN a paper recently presented before the Calcutta Section of the Institution of Mechanical Engineers, it was pointed out that, as power accounts for only about 2.5 per cent of



Illumination on Willow Street, Yonkers, during the recent Feast of Saint Anthony

sure better ensemble work among stage employes and persons in the cast, and in general increase the efficiency of the amusement-producing machine as a whole. The specialized nature of such problems illustrates in an interesting way the extent to which the engineer is obliged to master the details of other occupations in order to create successful installations of economical equipment.—*Electrical Review and Western Electrician*.

the manufacturing costs in a textile mill, an increase of from three to four per cent in production which results from steadier electric drive would practically wipe out the total power cost of the mill.

---

The New York Edison Company has the largest electric light and power stations in the world, capable of supplying over a half-million horse-power in electrical energy.



# Electro-Medical Apparatus in the Fango Institute

THE Fango Institute, as its name implies, was inaugurated primarily for the Fango treatment. There are, however, many electrical applications in the institute, such as electric light cabinets,

plied locally for various ailments.

The Institute is located at 69-71 West Ninetieth Street, away from the general disturbances of the city. The building is four stories in height, built with all sanitary hospital improvements, and is equipped with steam heat, elevator and electric service.

The X-Ray room, equipped with a twelve-inch high-frequency spark coil, is used for radiography, fluoroscopic examinations and high-frequency current treatments.

The static room contains a static machine with ten thirty-two-inch plates for X-Ray therapy and a Piffard high-frequency transformer.

There are a number of electric thermal baths arranged for giving galvanic, faradic and sinusoidal currents.

The electric light cabinets used in the institute are especially constructed and are so arranged that patients can be given actinic or thermal ray treatments, or a combination of both.

The accompanying illustrations show a few of the departments.



Showing Interior of Electric Bath Cabinet Used at the Fango Institute

X-Ray apparatus, high-frequency and static machines, electric baths, etc.

Fango is a volcanic substance found in Battaglia, an old, renowned watering place in Italy, which is ap-

plied locally for various ailments. It is now possible to telephone from Liverpool to Paris, Brussels and several provincial towns in France and Belgium.

## New Type of Gearing for Motor-Driven Machinery

THE *General Electric Review* recently contained an interesting account of the successful operation of cambric pinions for motor-driven machinery.

A large punch and shear, driven by a motor through a train of gears, and installed in a blacksmith shop, where the work is very heavy and rough, had been giving a great deal of trouble, both from noisy gears and from stripping of the gear teeth.

As originally fitted up, the train of driving gears consisted of a brass pinion on the motor shaft which drove through a cast-iron cut gear on a countershaft, and this, in turn, through another pinion connecting with the main gear of the machine. The countershaft carried a heavy flywheel, which, when running, caused a backlash that several times stripped the teeth from the cast-iron gear. The brass gear also soon lost its shape and gave trouble. After this experience a street railway gear and pinion were used, but they made an intolerable noise and had to be discontinued. It was at this stage that the inventor, looking for a substitute which would stand up, and having in mind rawhide and fiber, bethought him of having a muslin pinion made. This pinion was accordingly made, and was put on the punch over a year and a half

ago; up to the present writing, it has not given a particle of trouble, neither does it show any appreciable signs of wear.

Since that experience, a great many other troublesome machines



Patient in Electric Bath Cabinet at the Fango Institute

have been similarly equipped, until at present there are 700 of these muslin pinions in active service, and as yet not one has failed.

In making these pinions, the following process is followed. The muslin is cut out in disks, which are assembled and pressed between two



## The Edison Monthly

steel washers, the whole then being securely fastened with rivets or tap bolts, following the same method as that of making rawhide pinions. The blank is next turned to the proper diameter and the teeth cut in a gear cutter. The gear is then soaked in a good quality of machine oil.

These pinions can be made in vari-

nite length of time. In the actual running of these gears they seem to take a metallic coating on the teeth, which tends to protect them from excessive wear from the teeth of the other gear.

In addition to these features, there is also a certain amount of flexibility which is beneficial, as in all commercial gears there is apt to



Office of Fango Institute. This is a good example of soft, even Tungsten lighting

ous forms, of any reasonable size, and either with or without metallic centers. It is absolutely necessary, however, for the shrouding to extend to the full diameter of the gear.

With these pinions, the use of lubricants is unnecessary, as the oil which was absorbed by the muslin in the oil bath will keep the teeth of the pinion lubricated for an indefi-

be some slight inaccuracy in the spacing from tooth to tooth. When such gears are run with other metallic pinions there may be, and frequently is, an excessive strain brought on one tooth, which tends either to bend or break it. With the muslin pinion, however, the flexibility afforded by the material tends to distribute the strain over at least two

from 16 teeth, depending on the size and number of teeth in contact; these will stand any reasonable amount of this bending, there being 16 teeth to crystallize as in the case of the metallic gears.

Some engineers, when the matter was first brought to their attention,

### A Novel Use for Telephones

LAST month the steamer *Theodore Roosevelt* took the members of the Chicago Association of Commerce on a tour of the cities of the great lakes. During the entire trip it was in direct communication with Chicago. While at sea wireless



Interior of The New York Edison Company's Show Rooms at 124 West Forty-second Street, looking out toward the street.

were inclined to be a little skeptical, but the poems have given and are giving a practical demonstration of their merits by running every day on the hardest kind of service. An inspection of some of these cases would satisfy anyone as to their worth.

An electric sign leaves a lasting impression. Its circulation depends only upon the population.

telegraphically enabled messages to be sent and received. The Chicago Telephone Company equipped the boat with a portable telephone outfit and arranged with telephone companies of various cities visited to have wires laid to the docks where the steamer landed. As soon as the boat docked attachments were made with the apparatus set up on the boat, enabling those on board to call up their Chicago offices from their quarters.

## Immense Electric Sign Supplied by The Edison System

ON Saturday evening, June 18th, Broadway saw the spectacular new electric sign erected by the Rice Electrical Display Company illuminated for the first time. The current was turned

Street and Broadway, the advertisers who had space in this sign, with their friends, viewed the great spectacle.

Some of the items of interest from the programme issued by the Rice



Chariot Race Realistically Reproduced by a Great Flashing Sign. The wording at the top of the sign changes every few seconds. Many well known firms flash their advertising message to the Broadway crowds on this great electric sign. It is supplied by Edison Service

on a few minutes after eight o'clock, and long before that hour Broadway was crowded by thousands of people waiting to see this great electrical display.

From the roof of the Marlborough Hotel, at the corner of Thirty-sixth

Company for this occasion are as follows:

The sign contains about 20,000 electric bulbs, or ten times as many as the largest electric signs now burning on Broadway, and requires 600 horse-power to operate it. It is



one-third of a city block in width and rises seventy-two feet in the air, or seven stories of an ordinary building in height. Over ninety-five miles, or 500,000 feet of wire, were used to complete it, and there are 70,000 electrical connections. Eight railroad cars were necessary to transport the sign to New York, and a large force of expert riggers and electricians worked ninety days to erect and finish it. Lifelike action is reproduced in fire by the flashing of electricity at the rate of 2,500 flashes per minute. About 2,750 electric switches are used in operation.

A massive framework of steel supports the thousands of electric lights and the scene that the sign represents. A vast amphitheatre forms the background, while in the foreground Roman chariots appear to run with tremendous speed in a race as exciting as any Caesar watched. The flashings produce a highly realistic effect—giant horses in mad career; frantic charioteers urging on their steeds; manes, tails, cloaks blown backward by the onrush. On tall pillars at each corner of the picture great torches with high-tossing flames

light up the whole with barbarian splendor.

On the curtain above the amphitheatre are displayed in great fiery letters messages to the people of New York from "The Leaders of



Day View of the Immense Framework of the Great Sign Erected by the Rice Electric Display Co. on the Hotel Normandie, Broadway and Thirty-eighth Street. This sign is about seventy feet high and ninety feet long

the World." From every part of the country and from over the ocean the messages come; by mail, telephone, telegraph and cable they reach headquarters above Herald Square and are promptly flashed to the people passing below.

"The Leaders of the World" thus



Part of the Private Plant that has been replaced by Edison Service at Klempt's Bakery, 530 East Seventy-second Street

represented in the display will include only those who are foremost in each line of business. Their names are already familiar all over the world, wherever the English language is spoken.

This remarkable exhibit will be a local center of attraction to all New Yorkers and to visitors from all lands every night in the year from dusk to midnight.

### Private Plant Removed from Bakery

IN this issue we show two photographs of the isolated plant formerly used to furnish electrical energy to the building, 530-538 East Seventy-second Street, which has been abandoned for Edison Service.

The owner of these premises was anxious to learn whether the plant was operating the installation more economically than current could be supplied by The New York Edison Company, and called in a con-

sulting engineer to determine the matter for him. It was found, after exhaustive tests of the engine under various loads, that appreciable saving could be effected by adopting Central Station Service. Mr F A Forgee, 41 Park Row, conducted the tests.



Electric Dough Weigher at Klempt's Bakery, 530 East Seventy-second Street

# The Edison Monthly



August

1910

VOLUME III

CONTENTS

NUMBER 3

	Page
Editorial	66
Electric Equipment of a Perfumery Factory	67
A Simple Explanation of Alternating Current Formulas	73
Heating Sealing Wax by Electricity	71
Remarkable Progress of the Telephone	71
Lamp Diagram	74
Electrically Propelled Depot Haggage Trucks	75
Cooking and Heating by Electricity	78
Electricity for the Bath	79
Wireless in the Army	79
Historic Private Plant Abandoned	80
Gibraltar Illuminated	81
Storage Battery Cars for the Third Avenue Railroad	81
The Vohr Electric Ozonizer	81
An Interesting Sign Installation in Harlem	85
Motor-Driven Sewing Machines	85
Electric versus Horse Delivery	86
Electric's Fine Run	87
Fine Showing for an "Electric"	88
Portable Electric Vulcanizer	88
Thermometer Scales	89
Kerosene Oil the Only Illuminant	89
A New System for Driving Large Newspaper Presses	90
Train Despatching by Telephone	92
A Talking Clock	92
Electric Floor Polisher	93
An Effective Sign	93
A Novel Application of Electric Irons	94
A New Telephone Application	94
To Electrify the Hoosac Tunnel	94



# Editorial

## *The Edison Monthly*

Published by

## *The New York Edison Company*

General Offices

55 Duane Street New York City

President

ANTHONY N BRADY, 54 Wall Street

Treasurer

JOSEPH WILLIAMS, 55 Duane Street

Secretary

LEWIS B GAWTRY, 4 Irving Place

The woman who uses an electric iron selects the coolest spot in the house, or on the porch, and does her work in comfort. There is no fire to keep up, no overheated laundry, no running back and forth to change irons.

Electric irons are hot just where you want the heat, and nowhere else. Only one iron is needed, and it is always ready for service any place where electricity is available; it is so durably made that it will last a lifetime.

During the past ten years the method of operation and control of printing presses has received a large amount of attention and the electric drive, as in many other fields, has become one of the most important factors in the refinement of modern printing establishments.

Belts and long lines of shafting using valuable space and consuming from thirty-five to seventy-five per cent of the total power used, obstructing light and increasing the time to "make-ready," are now rarely seen.

In this issue we illustrate and describe a modern system of printing-press drive, which will be of interest to all publishers and engineers.

During the last three years so many changes have taken place in the appearance of Fourth Avenue that even New Yorkers, accustomed as they are to rapid transitions, find it hard to realize the remarkable development of business buildings in this section of the city.

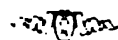
The shifting of population recurrent in New York about every decade is making itself especially pronounced this year. The residential population is following the Subway, and the commercial population is following the development of Fourth Avenue. The reason for this shifting of population, both residential and commercial, is to secure more light and air.

Frequently a building material firm, a rug manufacturer or agent, a book concern, or some other occupant of a downtown loft decides to move uptown where his competitors are flocking. For half a century, perhaps, he has enjoyed good service in the building he then occupied. When he wanted light or power he turned a switch and all the current he wanted was instantly available. Not once in that time has either light or power failed him.

Therefore, when he intimates to his rental agent his purpose to move, the first stipulation he makes is to "be sure that the light and power are dependable." He wants a loft where power is derived from the street mains. He reasons that at the main power station of The New York Edison Company there are many generators whose current can be turned into the mains that feed the building where his service is installed.



At a recent fire in a large office building the engineer in the basement lost his head in the general excitement and plunged the smoke-choked halls and stairways into darkness, and made the elevators useless by turning off the power, presumably to save the generating machinery from water damage. The Central Station gives power in the emergency as well as in ordinary usage, and by night as well as day.



That is the reason why the prospective occupier of the high-class loft building asks especially about the source of electric power. Efficiency and reliability are assured if The New York Edison Company's mains run into the building.

The owner realizes the importance of meeting his prospective tenant's requirements, and so he ponders the light-producing problem thoroughly. Economy in maintenance and the elimination of the first cost appeal strongly to him. In the Borough of Manhattan ninety-six and three-fourths per cent of all the new build-

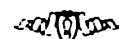
ings erected last year contracted for Edison Service.



A short time ago a gentleman from West Orange was arrested and fined for violating the automobile speed law.

This in itself is of no particular moment, but it is interesting to know that the machine was an electric and had been run from West Orange to Peekskill and was on the return trip when the driver was arrested on Fifth Avenue, near Seventieth Street.

That an electric, after making the trip covering approximately ninety miles on one charge of the battery could exceed the speed limit when so near the finish speaks well for its long-distance qualities.



A new ordinance against the smoking automobile nuisance went into effect on July 1st, and automobile chauffeurs who now pump oil into their engines in overdoses do so at their own risk, under penalty of the law.

This ordinance provides that the chauffeur of a smoking automobile may be taken to the nearest police station and charged with misdemeanor.

With electric automobiles there is no smoking or noxious gases, and at the present time especially this should direct particular attention to their many advantages.



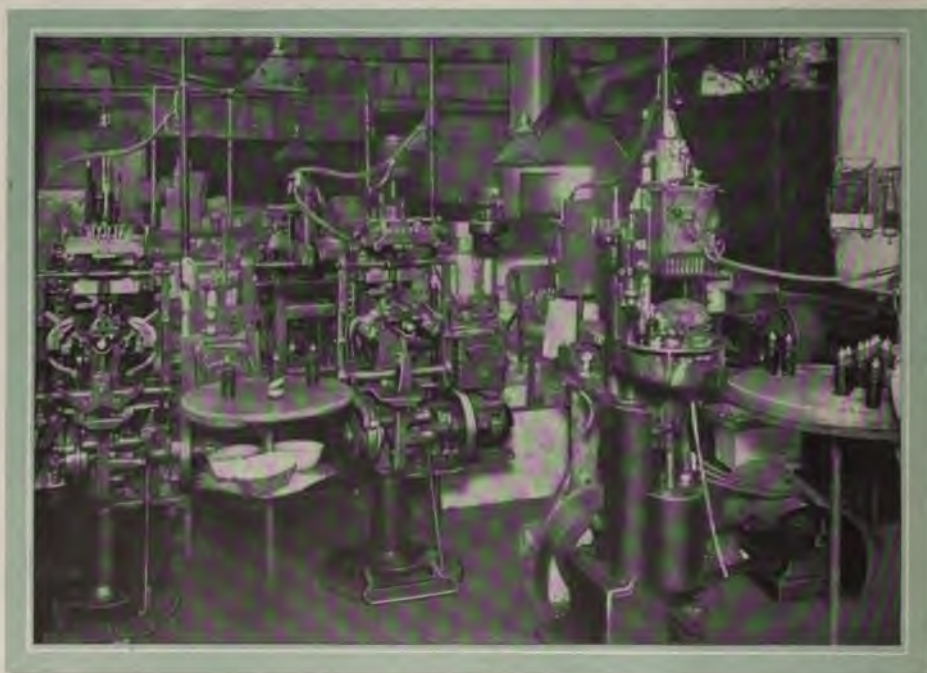
Electric trucks cover twice the distance in a day that horse-drawn vehicles can and at less expense.

## Electric Equipment of a Perfumery Factory

**A** MOST interesting process in which electric power plays an important part is that used by the American branch of the Parfumerie Ed Pinaud, Paris, in preparing their well-known staple products for the American market. Their

by hand, necessitating much more floor space than is at present needed. The introduction of electricity has enabled the factory to double its former capacity.

In manufacturing hair tonic and toilet water the liquids are mixed in



Motor-Driven Capping Machines, Pinaud Perfumery Factory

domestic headquarters are located at 84-90 Fifth Avenue, New York, and in this building is condensed one of the most efficient manufacturing plants in the city. The word condensed is used advisedly, for until about a year ago, when electric power was installed, all the work was done

copper tanks into which the ingredients are forced by a two horsepower electric pump, which works automatically. When the tanks are full the pump ceases working until the liquids are conveyed to the filtering tanks, when the pumping is resumed and the mixing tanks re-



**Motor-Driven Glueing Machine, Pinaud Perfumery Factory**

filled. From the filtering tanks the liquids flow by gravity to reservoirs that are connected to the bottle filling machines.

Empty bottles

come direct from the Paris factory to make about forty dozen in a day. They are washed and filled by machine and placed on a moving table, over for which is run by a three-horse-power motor. They are moved to three filling bottles, each of a capacity of 28 bottles per minute and operated by a three-horse-

power motor. After being filled, the bottles are put on a revolving table, from which an operator takes them one by one and places them in a capping machine controlled by a one-eighth-horse-power motor, and they are capped with metal bottle caps at the rate of fifty per minute. Next they go to the labeling machines, which are run by one-eighth-horse-power individual motors. White cord is next tied around the metal cap, the two ends of the cord being secured by a small red label extending entirely around the cap and acting as a seal. To receive small supplementary labels the

bottles are then placed on a moving table, provided on each side with a leather conveyor belt operated by a



**Motor-Driven Belt Conveyor for Bottles, Pinaud Perfumery Factory**

three-horse-power motor, one side being used for hair tonic and the other for toilet water. The gumming machines on either side of the table are controlled by individual motors attached to the machines. In a day over 18,000 bottles are conveyed over this table, properly labeled, polished, wrapped in plain paper and delivered to the packing table.

### A Simple Explanation of Alternating Current Formulas

**T**HE power factor of an alternating current circuit is the number by which the apparent power in the circuit—volts, times, amperes—must be multiplied in order to ascertain the true power. When an alternating-current circuit



Main Street, Yonkers, Before the New Street Illumination was Inaugurated

Before the electrical equipment was installed in the Pinaud factory the time taken for each bottle in its journey through the different processes was about fifteen minutes, while at present the bottles make the complete circuit in less than two minutes. The economy in expense, time and labor is obvious.

The electric vehicle helps to reduce the congestion of streets and materially aids in keeping them clean.

contains inductance, the current lags behind the electromotive force and when it contains capacity the current rises ahead of the electromotive force; in each case both the current and the electromotive force reach their maximum values at different instants, and the product of the current and the electromotive force at any instant is less than it would be if the two were in phase with each other.

If the current and electromotive



force be measured separately the voltmeter and ammeter will give the individual mean effective values; if they are measured by a wattmeter, the instrument indicates their combined value synchronously, not the product of their effective values which occur at different instants. Consequently the wattmeter indications will be less than the product

The former represents the actual power, usually in kilowatts, the latter the apparent power, usually in K V A, generated, transmitted or used by the apparatus. The latter, or K V A, rating is coming into more general use, since it represents more adequately the voltage and current conditions to which the apparatus is subjected.



Main Street, Yonkers, Showing the Splendidly Lighted Thoroughfare as it Appears with the New Illumination

of the separate voltmeter and ammeter readings; the ratio of the power to this product is the power factor of the circuit. Expressed as a formula:

$$\text{Power factor} = \frac{\text{Amperes} \times \text{Volts}}{\text{Watts}}$$

This gives rise to two methods of rating electrical apparatus, one on the basis of watts or kilowatts, the other on the basis of volt-amperes or kilovolt-amperers (K V A).

## Heating Sealing Wax by Electricity

ELECTRIC sealing wax heaters have proved most efficient and reliable where large or small quantities of wax are used. In express offices and shipping departments they are invaluable. It is impossible to overheat the wax the heaters contain, and the saving effected in this way as compared with those heated by other means is considerable.

## Private Plant Abandoned in the Wilhelmina Apartments



**The Wilhelmina Apartment Building, 1919 Seventh Avenue. Edison Service has been adopted for light and power and a private plant abandoned**

## Remarkable Progress of the Telephone

A RECENT issue of *The World's Work* contained an article by Mr. Hubert N. Casson, entitled "The Telephone as It is To-day," which gave some very interesting figures. In speaking of the growth of the telephone industry, the writer says:

"But it was New York City that was the record-breaker when the era of telephone expansion arrived. Here the flood of big business struck with the force of a tidal wave. The number of users leaped from 50,000 in 1900 to 310,000 in 1908. In a single year of sweating and breathless activity 65,000 new telephones were put on desks or hung on walls—an aver-

age of one new user for every two minutes of the business day.

"More and more were demanded until to-day there are more telephones in New York City than in the four countries of France, Belgium, Holland and Switzerland combined. Mass together all the telephones of London, Glasgow, Liverpool, Manchester, Birmingham, Leeds, Sheffield, Bristol and Belfast, and there will even then be barely as many as are carrying the conversations of this one American city.

"In 1879 the New York telephone directory was a small card showing 252 names; but now it has grown to be an 800-page quarterly, with a circulation of 500,000 and requiring twenty drays, forty horses and 400 men to do the work of distribution.

Have you an electric fan?



Part of Abandoned Plant, Wilhelmina Apartment Building



Switchboard of Abandoned Plant, Wilhelmina Apartment Building

### Lamp Diagram

**T**HE height of the vertical columns represents the candle-power of the various lamps, which are drawn to exact scale. The varying heights of the solid black portions show plainly the decrease in watts consumption of the high-

efficiency lamps, as compared with the carbon lamp taken as a basis.

The ratings of the carbon lamps are based on fifty watts for the sixteen candle-power size. In actual practice the efficiency of the eight candle-power lamp would be somewhat less than that given on the diagram.

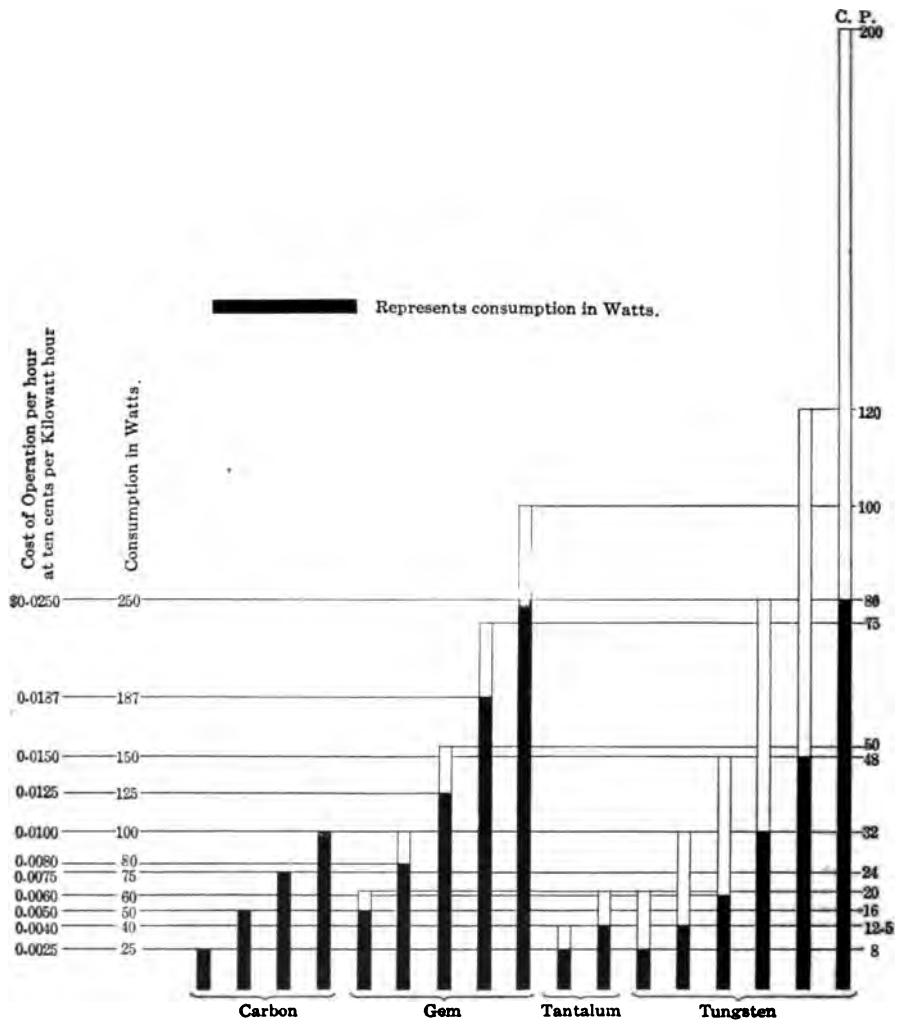


Diagram Showing Candle-Power, Consumption in Watts and Cost of Operation per Hour of Various Types of Incandescent Lamps

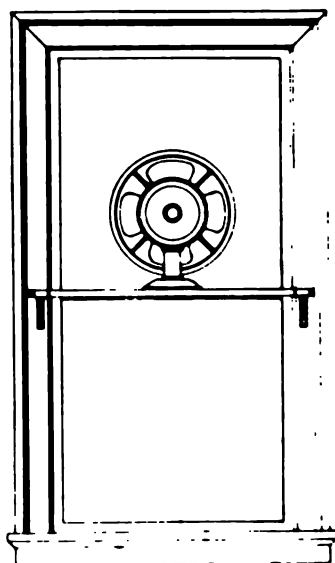
## Electrically Propelled Depot Baggage Trucks

**R**ECOGNIZING the desirability of having improved facilities for the transfer of mail and baggage to and from trains, thereby relieving station men of the most arduous part of their work, and likewise lessening the congestion on terminal platforms coincident with the arrival and departure of trains, the Pennsylvania Railroad began about six years ago to experiment with motor-driven trucks. After thoroughly trying out several different types they have come to recognize certain features as essential to the successful operation of a self-propelled vehicle for this branch of the service. These features they have incorporated in a truck of their own design, twelve of which have been built at the Altoona railroad shops and placed in service at the Jersey City terminal.

In general dimensions each truck is twelve feet long by forty-four inches wide, and the platform is thirty inches high. The frame is of all-steel construction, the center sills being standard shapes, while the side sills are pressed to special form providing a roll slightly higher than the level of the platform, to take the wear of loading and unloading baggage. The end construction also is of pressed steel.

A distinctive feature of this truck consists in its having both pairs of wheels mounted on knuckled axles, with the steering gear so connected that both pairs are utilized in steering. This permits of very short turns being made, which is desirable in crowded quarters, such as a terminal station at intervals is likely to be. A second im-

portant feature is that this truck can be operated from either end. Both the steering and the controlling gears are linked up to duplicate lever sockets at either end of the frame, whereby it is required only to transfer the steering and controller handles to the opposite end, and to adjust the operator's platform at that end to



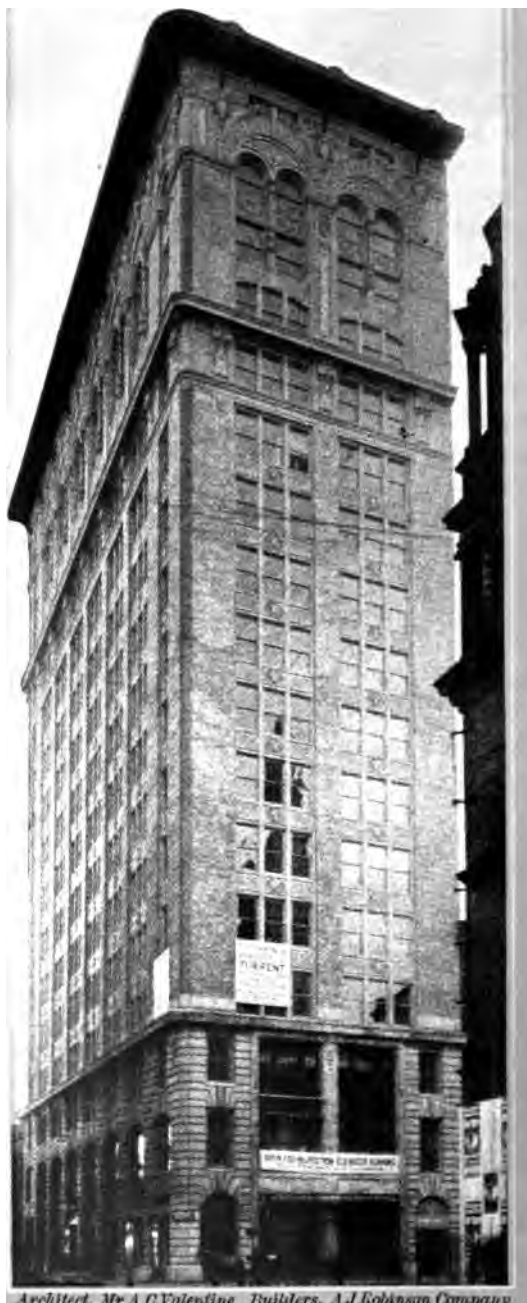
A good way to exhaust the vitiated air from a room with an ordinary electric fan, especially a kitchen or lavatory. The fan rests on a shelf fastened to the window casings and is placed so that the outer edge of the guard coincides with a circular opening cut in the window glass. If it is desirable to open the lower sash the fan can be drawn backward on the shelf.

manipulate the truck in precisely the same manner as before, but in the reverse direction. Since the truck runs with equal facility either way, all necessity for turning it around is removed. But one set of operating levers is required, and when removed the sockets into which they fit do not project beyond the ends of the truck



and are in no danger of being damaged. The operator's platforms are hinged to the frame, one at either end, and are so connected that the service position of either involves the folded position of the other, or both may be folded at the same time, which is frequently desirable, as on elevator platforms.

The truck is driven by an Elwell-Parker ball-bearing motor. The motor is series wound, has four poles, and is flexibly suspended from the countershaft housing, as well as spring suspended from the frame so as to oscillate about the countershaft as a center. Power is transmitted to the driving wheels through double reduction gearing. The motor pinion meshes with a gear on the countershaft which also is mounted on ball bearings, and which carries on either end a pinion which is connected to the shaft through the medium of a universal joint, made necessary in order that steering may be effected through the driver as well as by the trailers. These pinions engage with annular gears, which are integral with the separable runs of the wheels. The strength of the gear is greatly increased by utilizing the twenty-degree stub tooth. The motor pinion



*Architect, Mr. A. C. Valentine Builders, A. J. Robinson Company*

**New Building at Fourth Avenue and Twenty-seventh Street, which has recently adopted Edison Service for 3,000 incandescent lamps and about 300 h p in motors**

and the countershaft gear are enclosed within an aluminum housing, and run in oil.

The wheels are of the artillery type, twenty-seven inches in diameter, and are fitted with Timken roller bearings and three and one-half-inch solid rubber tires. The rim is made in two sections and clamps the spoke in such manner as to avoid reducing the size of the spoke where it is ordinarily tenoned in a wooden felloe. This arrangement permits of using any of the standard methods of tire fastening. In the case of the trailer wheels, the annular gears are supplanted by brake rims of the internal expanding type. The introduction of divided expanding pin in alignment with the steering knuckle, results in a uniform application of the brake, regardless of the direction in which the truck is running or the end from which the brake is applied, which latter is done by means of a pedal on the operator's platform.

The battery, the capacity of which is 106 ampere hours, is composed of twelve cells mounted in one tray, which is suspended from the under side of the truck frame, on three points, by springs in compression. It can be readily removed, and by means of the battery transfer system in use at Jersey City the trucks can be kept in operation twenty-four hours per day. The controller is built up in a sheet-iron box, and is also mounted on the under side of the platform. It provides three speeds in either direction, the second and third being the running speeds. The second is from four to five miles per hour and the third is from five to seven miles per hour, depending on the load and the grade. The controller handle socket

at each end of the frame is in such position as to bring the lever within easy reach of the driver's left hand. The handle can be inserted only when the controller is in its neutral position and cannot be withdrawn while the current is on. A single spring returns the controller to the neutral position when the operator releases the controller handle.

The axles of the truck are interchangeable, their functions being in every way similar except that on the trailing axle brake hangers are provided in the bearing which on the driving axle carry the countershaft housing. The steering knuckles are of such form that the ends of the hubs are required to project beyond the side sills of the truck but three-fourths of an inch, minimizing all danger of collision with columns or other objects. The weight of the truck in running order is 2,300 pounds and its carrying capacity is 4,000 pounds.

Patents covering all details of the truck are held by the designer, Mr T V Buckwalter, of Altoona, Pa, who has licensed the Elwell-Parker Electric Company, of Cleveland, Ohio, to make and sell it. Twenty-five of these trucks will soon be installed in the Pennsylvania Railroad Station at New York. Twelve are in use at the new terminal in Washington, D C, and twelve more at the Pennsylvania Company's Jersey City Station.—*The Power Wagon*.

— — —

The electric automobile is so simple in operation that it makes the ideal car for ladies. No cranking is necessary and there are but two levers to watch.

# Cooking and Heating by Electricity

**E**LECTRICITY as applied to heating and cooking has been used for many years, but is now being used on a much more extensive scale. The rapid development of heating and cooking devices and their manifold advantages has made electricity a strong competitor with other forms of artificial heat.

In a recent issue of the *Electrical Review and Western Electrician* appeared an interesting article on this subject. In the course of the article the author gives many advantages for using electricity and describes an interesting application in New York. Speaking of cooking by electricity he says:

"The rapidity with which food may be cooked by the use of electricity, the uniformity of temperature obtained which makes cooking by the clock a possibility, the great comfort and convenience, the cleanliness and freedom from smoke and smell incident to this method of cooking, make it ideal for all places where these advantages are of importance."

In describing the New York installation the author says:

"A most interesting installation of this kind which has come under my direction is that installed in one of the prominent club houses in New York City, about three years ago. It is shown in the accompanying illustration and represents a type well suited to the requirements of any club house, large residence or hotel, where it is

desired to secure the best service obtainable.

"The field of the electric range or grill is as wide as that of the older forms, using either coal or charcoal, and a glance at the following menu will serve as evidence of the service of which these devices are capable.

	Minutes.
Small steak .....	9
Sirloin steak .....	13
Tenderloin .....	6 to 12
Lamb chops .....	6
Mutton chops .....	8
English mutton chops .....	15
Veal chops.....	10
Pork chops .....	10
Broiled chicken.....	15
Poussin.....	15
Squab.....	10
Guinea hen.....	15
Deerfoot sausages.....	4
Country sausages.....	4
Veal kidneys.....	15
Lamb kidneys.....	15
Mushrooms .....	15
Grilled or planked shad.....	6 to 12
Grilled sea bass.....	4
Grilled Spanish mackerel.....	4
Grilled lobster.....	5

A small electric hoist will do the work of several men in a much quicker and more satisfactory manner.

Edison service is the motto of cleanliness and comfort.

## Electricity for the Bath

**F**OR heating various kinds of baths electricity is invaluable. By means of a portable electric hot-air cabinet, the luxury of a Turkish bath can be enjoyed as

## Wireless in the Army

**U**NPACKING and erecting a wireless telegraph plant in sixty-eight seconds that is capable of sending messages twenty-five miles is quick work considering that



*Courtesy the Electrical Review and Western Electrician*

**Electric Cooking Installation in a Large New York Club House**

readily, cheaply and as often as by any other means with greater convenience and economy. The sand bath and ordinary water bath are warmed by means of coils electrically heated and immersed in the sand or water as the case may be.

the outfit includes a forty-foot antenna. It is claimed, however, that this is accomplished by the Signal Corps at Fort Meyer, Va.

The electric automobile is both clean and economical.

## Historic Private Plant Abandoned

THE New York Central & Hudson River Railroad Company has recently abandoned the private plant, which was used to light its warehouse in Hudson Street and substituted Edison Service.

The plant was one of the oldest in existence, having been in operation twenty-five years. From the historic nature of the equipment it is of exceeding interest to "old timers" in the electrical field.

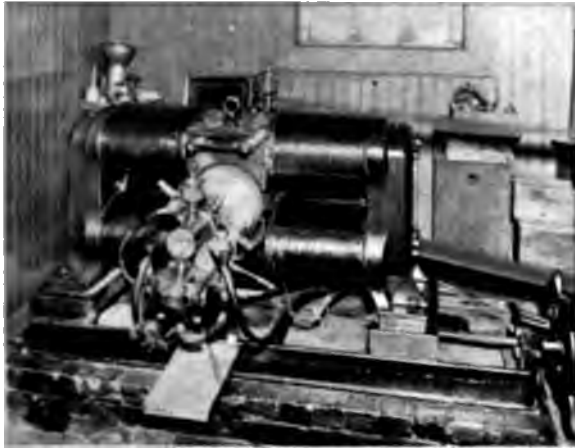


New York Central Railroad Warehouse in Hudson Street Where the Private Plant has recently been abandoned and Edison Service Adopted



## Gibraltar Illuminated

THE Prudential Insurance Company of America, with Home Offices at Newark, N. J., has made another big advertising hit by erecting at Hoboken, N. J., directly opposite New York City, a great electric sign of the Rock of Gibraltar. The electricians who put up the sign say that it is the highest



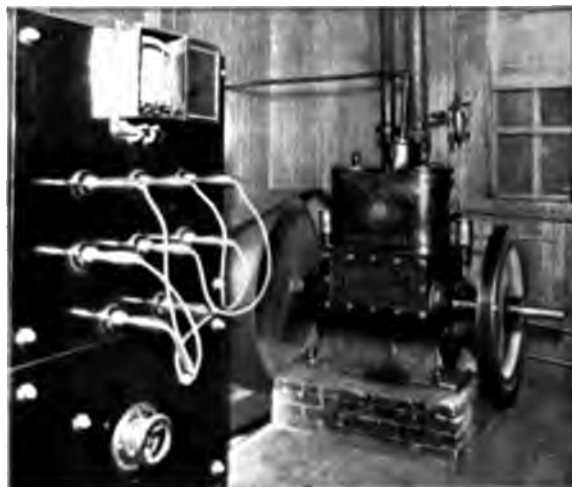
Abandoned Generator, New York Central Railroad Warehouse

electric sign in the world. The sign consists of thirty red style double arcs burning in series on two circuits of fifteen each. Current was supplied by a Weston dynamo operating at from twelve to fifteen amperes, driven by a Westinghouse standard engine.

The boiler was about sixteen feet in diameter, including the dome, and was surrounded with a fire brick lining five feet in diameter. The switchboard equipment included a United States ammeter and three switches with control handles.

Why not equip your sewing machine with an electric motor? It prevents fatigue and makes sewing a pleasure.

electric sign in the world. The sign operates automatically and, in addition to flashing the Rock, flashes the company's trade mark, "The Prudential Has the Strength of Gibraltar." The sign is on the top of the new



Abandoned Switchboard and Engine, New York Central Railroad Warehouse

Terminal Building at Hoboken, and the top of the Rock is nearly 200 feet above ground. Six miles of wire were used in connecting the lights. The letters forming the words "Prudential" are ten feet high. It takes enough electricity to light the Rock to equal the pulling power of 100 horses. The sign is built to withstand a wind pressure of 250 tons, and 3,000 electric lamps are used.

## Storage Battery Cars for the Third Avenue Railroad

**A**FTER experiments with gasoline and storage battery cars, the Third Avenue Railroad has decided to do away with all of its horse cars and to substitute storage battery cars.

The new equipment, consisting of



Boiler Formerly Used for Furnishing Steam to the Abandoned Plant in New York Central Railroad Warehouse. Owing to the position of this boiler it was impossible to photograph its entire length, it being over sixteen feet high



Old Type of Arc Lamp Formerly Used in New York Central Railroad Warehouse

thirty cars, has been ordered and will be ready for service in the early autumn.

The new cars will take the place of horse cars on the Avenue B, Dry Dock, Canal Street and St Nicholas Avenue lines.

Bodies for the new cars are being built in the Third Avenue Company's barns, while the motors and batteries will be supplied by an outside company.

---

Edison Service insures comfort.

# The Vohr Electric Ozonizer

**E**VERYONE has experienced the dulling, depressing effects of breathing the vitiated air of a crowded hall or office or railway train. It is simply a case of poisoning, which, if continued, means lowered vitality, ill health and, frequently, death. In every home and in every office or factory where the air is not pure, this poisoning process is going on with varying degrees of bad results; the first indications we have are: a listlessness about our work, a lack of energy, a feeling of drowsiness, frequently accompanied by dull headache; we are being poisoned, slowly but surely.

When we realize this and throw open a window, the system, weakened by the poisoned air, and burdened by the refuse in the blood and lungs, is unable to offer any reaction to the cold of the fresh air, and we "take cold," for which we blame the cold air, when, as a matter of fact, it was the warm, impure air that caused the harm.

Neither Peary nor Shackleton suffered from colds during the entire time they were in the polar regions, because they had an abundance of fresh, vitalizing air—but Shackleton caught cold

when he touched civilization, with its impoverished air.

Every home, office, school, hospital, factory and auditorium can be constantly supplied with good, fresh, life-giving air at a cost so small as to be negligible. For offices and factories the returns in improved health and increased energy and capacity for work among the employees will pay handsomely every month in the year.

All that is necessary to secure this is to install a Vohr Electric Ozonizer. This simple and inexpensive apparatus follows Nature's own method of purifying the air by passing it through an electrical glow; the outside air is drawn in, passed through this ozonizer and part of its oxygen is converted into ozone and distributed through the air of the room. Ozone



The Vohr Electric Ozonizer

is oxygen energized; oxygen with more power; greater activity. The effect is felt at once; there is the crisp freshness and coolness that is so noticeable in the air immediately after an electrical storm; everyone feels invigorated and ready for work or play; the blood is purified, and the body is put into its best condition to resist disease.

European countries are thoroughly awake to the great benefits to health and purse that come from the application of ozone and its distribution in the air of homes, offices, etc. We in this country are just realizing its great value. There is nothing like it.

Dr H W Wiley, Chief of our National Bureau of Chemistry at Washington, in an address to the class in Sanitary Science in Cornell University, stated that one of the common ways of committing suicide was to breathe impure air. Of course, such suicide is generally unintentional, but it is none the less suicide, for it is self-destruction by a course that is avoidable.

He emphasizes the fact that bad air is the main cause of colds.

An eminent industrial chemist, who has given the question of ozonized air the most thorough study, says: "Ozonize your air for the same reason that you salt your food, to give it wholesomeness, vigor and life."

The results that have been shown in the improved health and increased capacity of clerks in banks, factories, safety deposit vaults, etc, where ozonizers have been installed, are little short of miraculous.

The Vohr ozonizer purifies the air of your rooms by actually destroying the impurities and poisons that are

exhaled from the body by the lungs and skin. Ozone is the greatest cleanser on earth.

The ozonizer is made by the Standard Electric Utilities Company of Chicago, Illinois.

Have you an electric fan at home?



New Style of Electric Sign in Front of  
a Harlem Store

## An Interesting Sign Installation in Harlem

**A** NEW electric sign has recently been erected in Harlem which bears the distinction of being the only one of its kind in the city that derives current from a direct-current, three-wire system.

It is twenty-two feet high by thirty-two and one-half inches wide, and reads "Weinberg's," in letters twenty inches high, as shown in the illustration. It contains a total of 300 four candle-power, five-watt, low voltage tungsten lamps wired in series multiple on three-wire system. The border and letters light up alternately by means of a motor-driven flasher, and are of the raised channel style of construction. The interior of the channel is finished in white, and the lamps have translucent white ends to correspond; the color of the border is red, and the lamps in it have translucent red ends to match.

The average watts consumed by this sign are a trifle over 800 per hour, including the current used by the motor, making the operating cost eight cents per hour for the entire sign, with current at ten cents per kilowatt hour.

The sign was made and installed by the Empire Electric Sign Company, 162 East 118th Street, which has made many conspicuous signs in the city.

## Motor-Driven Sewing Machines

**O**F all the mechanisms devised to lighten the labors of the housewife the sewing machine is, perhaps, the best example. Since 1845, when Howe first produced a satisfactory machine, vast numbers of machines have been made and marketed for many purposes. Of these probably the greatest number sold are those designed for household use.



Modern Motor-Driven Sewing Machine for Household Use

With the advantages of convenient, uniform and rapid sewing by machine there yet comes the unpleasant and sometimes dangerous fatigue engendered by the long-continued pumping action of the feet upon the sewing machine treadle. Many are the auxiliary devices proposed to avoid this laborious operation of foot-power supply and the electric motor is best of all.

Have you an electric fan?



# Electric Versus Horse Delivery

**T**HE rapid disappearance of the horse from use with pleasure vehicles in our city streets is a phenomenon we are quite accustomed to. It is a fact, however, that the horse retains his place in the delivery and trucking service of the city far more tenaciously.

Why is the merchant so slow, as a rule, to adopt mechanical means of delivery while in nine cases out of ten he has long ago abandoned the horse for personal and family use?

The question of costs doubtless is at the bottom of the merchant's conservatism in this respect, but his hesitation is due not so much to his information on this subject as to lack of knowledge.

He knows the cost of horse delivery is excessive. He knows, also, that it costs money to keep a high-power gasoline car. He reasons, accord-

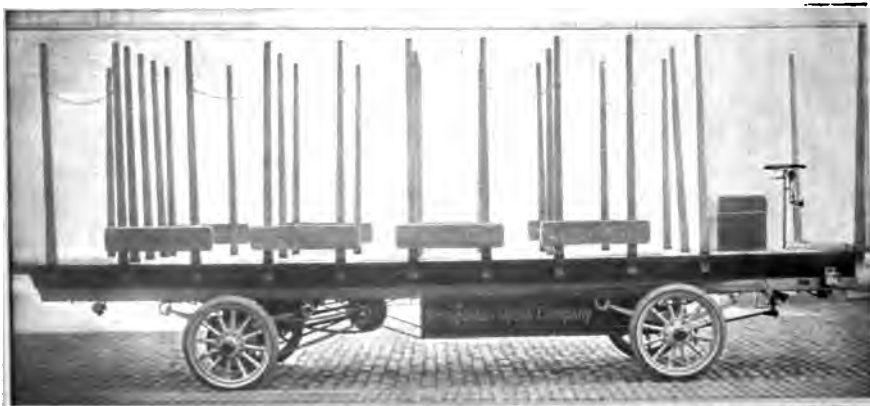
ingly, that the cost of delivery by mechanical means would exceed even that by horse. Here, however, his argument is faulty.

Take the case of the man who uses two one-ton delivery wagons, keeping them in constant operation. His investment would be at a low estimate:

2 1-Ton Wagons at \$380.00 . . . .	\$ 760.00
5 Horses at 220.00 . . . .	1,100.00
2 Sets of Harness at 45.00 . . . .	90.00
	<u>\$1,950.00</u>

His expenses, according to figures recently given out by a large truck company, would average, per year:

Oats . . . . .	\$ 480.00
Hay . . . . .	227.00
Bedding . . . . .	45.00
Water and Tools . . . . .	30.00
Stabling . . . . .	30.00
Shoeing . . . . .	90.00
Interest at 6% . . . . .	117.00
Depreciation, 20% . . . . .	390.00
Drivers' wages . . . . .	1,248.00
Total expenses per year	<u>\$2,657.00</u>



**The Lansden Company's Special Electric Truck Used by the Metropolitan Opera Company for Handling Properties and Scenery**

Owing to greater speed of the automobile the work of this man's two wagons could be performed by one electric of the same capacity. His investment for an electric delivery wagon of one-ton capacity would be \$2,000

His expenses would be:

Cost of current at 6c per kilowatt hour, allowing for 375 charges	\$ 329.16
Allowance for battery renewal repairs.	289.00
Average for tires and other repairs	225.44
Interest at 6%	120.00
Depreciation (10% on \$2,000 less battery and tires, \$736.46)	126.35
Driver's wages.	624.00
	<u>\$1,713.95</u>



The Lansden Company's One-Ton Wagon, Ten of which were Recently Delivered to Messrs Abraham & Straus of Brooklyn. These machines are duplicates of those used by Messrs R H Macy & Company, with the exception of the style of the body

Thus the merchant's total outlay for horse-drawn service would be \$4,607.00  
And for electric service 3,713.95  
Making a net saving per year of \$893.05

The figures given above for electric service are based on average expenses for a series of five years and are taken from the actual experience of owners of electric delivery wagons in constant service. They can easily be verified.

## Electric's Fine Run

**M**R E R Vincent, of Indianapolis, recently drove a Waverley electric brougham from Richmond, Ind, to Indianapolis, sixty-eight miles over country roads, including about twelve miles of quite hilly country, in five hours' time.

The car was then put in the hands of another driver and run to the limit of the battery charge about Indianapolis streets, making ninety-eight and three-tenths miles without recharging.

The equipment of this Waverley was in every way regular, the battery

being thirty-two cells of thirteen plates each, the motor being the regular type, having 360 per cent over-load capacity, transmitting its power through the Waverley high-efficiency shaft drive of ninety-eight and seven-tenths per cent tested efficiency to the rear axle. These two features of the car, the unusual overload capacity of the motor and the extreme efficiency of the driving gears, are the points the

Waverley people direct attention to as explaining the present highly satisfactory mileage of this type of electric.

Still better results than this are often obtained with Waverleys equipped with special hy-cap batteries; but 100 miles or thereabouts with regular equipment gives an excellent radius of operation.

### Fine Showing for an "Electric"

**R**ECENTLY an electric brougham, belonging to a resident of this city, was run from here to Philadelphia, covering a distance of 104 miles. At the end of the run it was estimated that there was still a battery reserve capable of running the car twenty-one miles further, which would make a total distance of 125 miles on one charge.

The trip was made in seven hours and fifteen minutes, at an average rate of fourteen miles per hour.

The battery equipment consisted of sixty-three cells of Edison type A6 batteries. The input of charging the battery was 315 ampere-hours, at an average voltage of 107, making a total of thirty-three and seven-tenths kilowatt hours to complete the charge.

The current consumption per mile was twenty-seven hundredths of a kilowatt, or a total for the journey of a trifle over twenty-eight kilowatts, which at six cents per kilowatt would cost \$1.68, or approximately .016 cents per car mile.

### Portable Electric Vulcanizer

**T**HE making of a satisfactory portable auto-tire vulcanizer was for years a problem, due to the fact that rubber vulcanizes at a certain temperature only, and perfect heat regulation was impossible with small vulcanizers heated with alcohol, gasoline or steam.

Electricity, however, solved the problem, as the flow of current and, consequently, the temperature of an electrically heated vulcanizer can be

regulated to a nicety by either a rheostat or a thermostat.

The C A Shaler Company, Wau-pun, Wisconsin, makes a full line of Shaler Electric Vulcanizers for the use of both car owners and public repair stations.

The owners' models are particularly valuable in keeping the holes in the outer shoes sealed and thus preventing



Portable Electric Vulcanizer, Vulcanizing  
the Inner Tube of an Automobile Tire

deterioration. There are public garage models for work of all kinds, from repairing a nail-hole in an inner tube to mending the largest blowout in a casing.

The amount of current consumed by each model is approximately sixty-five watts. The vulcanizers heat very quickly and as there is no fire to be started no danger from flame, and the heat is automatically regulated. They are fast taking the place of the old-style vulcanizer and are in actual use in seventy-five per cent of the garages

in the country and by over thirty thousand automobile owners, although they have been on the market but a few years.

A project is now on foot to light the Erie Canal with electricity from the Tonawandas to Albion. It is proposed to use the surplus water from the Lockport locks to develop the power required.



Portable Electric Vulcanizer as Applied to the Outer Casing of an Automobile Tire

## Thermometer Scales

THE different thermometer scales used, frequently lead to confusion. In electrical and mechanical literature Centigrade readings are given sometimes and again Fahrenheit readings will be given. If the temperature be given as Centigrade it may be changed to the Fahrenheit scale or vice versa by the following formulas:

$$\begin{aligned} \text{Temperature Centigrade} &= \text{Temp. F.} - 32 \div 1.8 \\ \text{Fahrenheit Temp.} &= \text{C.} \times 1.8 + 32 \end{aligned}$$

In the Centigrade scale the freezing point is zero, and the boiling

point 100 degrees. In the Fahrenheit scale the freezing point is 32 degrees and the boiling point is 212 degrees.

The table below gives the corresponding readings of both scales:

Temperature		Temperature	
Centigrade	Fahrenheit	Centigrade	Fahrenheit
0	32	10	50
1	33.8	20	68
2	35.6	30	86
3	37.4	40	104
4	39.2	50	122
5	41	60	140
6	42.8	70	158
7	44.6	80	176
8	46.4	90	194
9	48.2	100	212
10	50		
11	51.8		
12	53.6		
13	55.4		
14	57.2		
15	59		
16	60.8		
17	62.6		
18	64.4		
19	66.2		
20	68		
21	69.8		
22	71.6		
23	73.4		
24	75.2		
25	77		
26	78.8		
27	80.6		
28	82.4		
29	84.2		
30	86		
31	87.8		
32	89.6		
33	91.4		
34	93.2		
35	95		
36	96.8		
37	98.6		
38	100.4		
39	102.2		
40	104		

## Kerosene Oil the Only Illuminant

A CONDITION that would be hard for New Yorkers to conceive was recently described in the *Electrical Review and Western Electrician*.

Palermo, a township in Butte County, Cal., is in the peculiar position of having to use kerosene for illumination, although the transmission lines of three great power companies (Great Western, 150,000 horse-power; Pacific Gas and Electric, 11,000 horse-power, and Oro Water, Light and Power, 5,000 horse-power) pass directly through the town. It is reported, however, that the Oro Company will shortly proceed to alleviate this lamentable state of affairs by installing a local substation and distribution system.

The Berlin Fire Department has figured out that an electric service costs only one-tenth of a horse-drawn wagon service.

# A New System for Driving Large Newspaper Presses

THE Garwood Electric Company, of Garwood, N. J., has recently placed on the market a new system of motor drive for operating newspaper presses with station control which has many novel features. The motor used is built especially for the purpose, but has standard parts. It has commutating poles and is designed to obtain the entire range of speed from "making ready" up to maximum printing speed without the

use of wasteful armature resistance, thus securing the highest economy obtainable.

Recent installations made show that the cost of operation is very low indeed and that the power taken to start the press is not more than twenty-five per cent of that required to drive the press at maximum speed, while the power taken for "making ready" and "threading in the web" is not more than fifteen per cent of that re-



The Garwood System of Printing Press Drive in a Large Newspaper Office



designed to print at maximum speed. The power consumed over the entire range of speed is very nearly proportional to the speed, which results in a very even transmission of power through the gears of the press, avoiding any jerky motion or jar. This system of driving the press is all electrical, there being no auxiliary motor for starting or any gearing device other than the pinion on the single motor which drives the press.

The switchboard is of black enameled slate approximately forty inches wide by eighty-four inches high, on which is mounted:

- One automatic switch for opening and closing the circuit.

- One Weston amperemeter of guaranteed accuracy.

- Two pilot lights.

- One double-pole knife switch.

- One circuit breaker for protection of motor and press at high and intermediate speeds.

- One circuit breaker for protection of motor and press at slow speed.

- One automatic controller and hand wheel, having approximately 100 field contacts, and returning to zero whenever press has been stopped.

- One emergency stop button for use with hand control.



Control Station of Garwood System of Printing Press Drive

Three knife switches: one for reversing rotation of the press; one for transferring control of the press from stations to the auxiliary or head pressman's station and one for substituting hand control for automatic control.

Necessary field and starting resistance, the latter being rigidly bolted between the feet or supports of the switchboard.

The control stations are of substantial construction, consisting of three buttons, "A," "B" and "C."

"A." Starting, accelerating and safety button for starting and increasing the speed of the press, including inching and "threading in."

"B." Slow-down button for decreasing the speed of press from maximum to ten revolutions of the cylinders.

"C." Stop and lock button for stopping and locking the press simultaneously and holding it locked until the locking device has been released



Garwood Printing Press Motor

at the station at which it was applied.

With this system it is possible for the head pressman to limit the maximum speed of the press for any one run and this speed having once been adjusted it cannot be exceeded, no matter how often the press may be started or stopped during the run.

In the event of any disarrangement of the wires of the press control station the equipment may be operated perfectly from the head pressman's station, or by hand. An emergency button is provided on the board for quick stopping in connection with hand control.

The system is foolproof. Should more than one pressman push the "slow-down button" the equipment would slow down. Should one pressman push the "speed button" while another simultaneously pushed the "slow-down button" the press would at once slow down.

Pressing the "stop button" not only stops the press, but locks it at every station until the automatic catch on the stop button at the station where it was applied is released, making it absolutely safe for any pressman to go in to lock it by merely stopping the press.

### Train Dispatching by Telephone

At the present time the Great Northern Railway is using the telephone to dispatch its trains on divisions covering approximately two thousand one hundred miles of its line. Extensions to the telephone system are now being planned.



Garwood Switchboard for Printing Press Control

### A Talking Clock

THE Talking Clock Manufacturing Company, 79 Cortlandt Street, New York, has developed a clock that, besides keeping good time, operates thirty advertisements. A phonograph is used to attract the attention of passers-by by setting forth the merits of the various wares.

A belt arrangement brings into view a plate bearing an advertisement of the article discussed by the phonograph, and the advertisement is changed automatically every minute. The device is operated by a one-half horse-power electric motor.

Use Edison Service.

## Electric Floor Polisher

**T**HE Electric Floor Polisher described below is intended for polishing parquet floors and for waxing hardwood floors, especially in hallways and dancing halls. The brushes are removable and may be replaced by special brushes or mops for waxing and scrubbing stone floors and the like.

The machine consists of a frame upon which are mounted a small electric motor and three brushes, as shown in the illustration. The central brush has a rotary motion, and the end brushes have a reciprocating motion. The electric motor consumes one hundred and fifty watts an hour, or about the same amount of energy as three sixteen-candle-power carbon filament lamps. The weight of the machine is about sixty

[illegible][illegible]

Straight and honest  
People, France, for the  
the state to get  
and its own  
to the United States  
with national  
Student rights  
passed to the com-  
engineers, McGraw  
**Marks & Woodwell, Term**

inal Building, 103 Park Avenue,  
New York City.

## An Effective Sign

**T**HE *Electrical World* recently related a rather humorous incident which was brought about by an electric sign. It seems that an electric sign bearing the word "Bar" was, during the rush season, left in front of a store which had been vacated by a saloon and later occupied as a hardware store. The sign was so effective that the hardware man said that he and his wife were driven almost to distraction by men who came in and insisted upon being served with drinks. The too successful sign was finally removed by the police.



Electrical Power Plant

### A Novel Application of Electric Irons

**W**HAT is probably one of the most novel applications of electric irons is to be found in the furniture manufacturing establishment of Messrs P Nathan & Co, 156 Hester Street, New York.

The irons are used for repairing wood that has been nicked. Heretofore it has been a problem to find some device that would do this kind of repairing satisfactorily. The process at present in vogue is to fill the nick or crack with a specially prepared paste, and then smooth it with an electric flat-iron, causing the wood to swell sufficiently to make it an impossibility to detect the defective spot.

This company was one of the first to use electric lights and elevators, as well as the first to utilize electric irons for renovating the woodwork of furniture.

subscribers. When a patron wishes to hear some music he calls for the music operator and the record he desires, all subscribers being supplied with a catalogue.

The arrangement works very satisfactorily, and it is claimed that the phonograph is as plainly audible, as though it were in the room with the listener. The charges are reasonable, three cents for ordinary records and seven cents for those executed by operatic stars.



Electric Iron Used for Repairing Woodwork of Furniture

### A New Telephone Application

**L**ISTENING to music over the telephone is not a new thing, but its commercial application is somewhat of a novelty. The telephone company in Wilmington, Del, has equipped a department with phonographs and has a complete line of records for the use of

### To Electrify the Hoosac Tunnel

**T**HE Boston and Maine Railroad has plans under consideration for the electrification of the Hoosac Tunnel in Massachusetts, which will entirely eliminate coal and oil-burning locomotives. If the plans are put into effect the tunnel will also be lighted and ventilated by electricity.

# The Edison Monthly



September

1910

VOLUME III

NUMBER 4

## CONTENTS

	Page
Editorial	98
The Peter Minuit Apartment Building	101
Electric Lights in an Ancient City	101
Dyeing Cloth by Electricity	102
Electric Piano Drying	102
Electric Irons in a Costume Factory	103
Large Order for Electric Trucks	103
Electric Spot Welding	103
The Sirocco Electric Fan	106
Fence Wire as High-Tension Transmission Line	106
Wireless Telegraphy	107
Improved Office Lighting	108
Electricity Meters	109
A Hilly Road for an Electric	110
Improved Street Lighting in Yonkers	111
Application of Motors to Machine Tools	112
Richmond Suction Cleaner	114
The Detroit Electric	114
Electric Radiators	114
The Care and Operation of Edison Storage Batteries	115



# Editorial

## *The Edison Monthly*

Published by

## *The New York Edison Company*

General Offices

**55 Duane Street New York City**

President

ANTHONY N. BRADY, 54 Wall Street

Treasurer

JOSEPH WILLIAMS, 55 Duane Street

Secretary

LEWIS B. GAWTRY, 4 Irving Place

On August first the First District Office of The New York Edison Company removed from its former location, 55 Duane Street, to No 424 Broadway. This office has jurisdiction over the territory south of Eighth Street and west of the Bowery. Here contracts may be signed, bills paid and lamps exchanged.

The New York Electrical Show will open October 10th in Madison Square Garden and will continue for ten days. To the layman, the manufacturer and the central station man alike exceptional opportunities will be offered for social and business intercourse that will enable the manufacturer to exploit the latest electrical and allied devices and enable the layman and central station manager to inform themselves about everything new in the art.

The Show this year from every standpoint will excel anything of the kind previously given in this or any other city. The number of exhibits will be much larger than in previous years and will be conducted on a

more comprehensive scale than heretofore attempted. In a large sense the Electrical Show is co-operative in its nature, as the visitors learn the merits of the many labor-saving devices, which in a majority of cases leads to their adoption. To operate these devices current is necessary; there is therefore an increased sale of current on the part of central stations; the manufacturer is benefited by increased sales of his products, and so it goes all along the line.

The domestic applications of electricity will be prominently displayed, which cannot fail to interest every housewife. This branch of the electrical business has developed so rapidly and is so intimately connected with domestic science that the ladies may feel assured a part of the Show is given over for their especial benefit.

The industrial and power exhibits will include the application of the electric motor to every known device. To the manufacturer who is seeking a way to increase his product, and at the same time reduce his operating expenses, these exhibits will be of particular interest. Expert engineers will be in attendance to give information relative to the electric power requirements of various industries.

Electric illumination and electrical advertising devices will occupy a prominent part in the display. Here

progressive merchants will find the most up-to-date methods of store lighting and electrical signs of all kinds.

Electrically propelled vehicles for pleasure and commercial purposes will be exhibited. They are now recognized as the most desirable means of transportation of passengers and merchandise. For a pleasure vehicle the electric has no equal.

The Electrical Show is educational in character and cannot fail to add to the general information of every one attending it. As a means of gaining a more intimate knowledge of the working exhibits, the various lighting and power companies will have representatives in their headquarters at the Show to escort visitors about the Garden to explain the workings of the machinery and apparatus.

Band concerts will be given every afternoon and evening during the Show as an additional attraction to music lovers.

It is probable that but very few observers of a new building in course of erection stop to consider how the material is hoisted to the workman. Every stone and brick, every piece of structural steel work—in fact, every particle of material used, must be raised to a convenient point for the artisans as the building progresses.

This work has to be done quickly,

and in high buildings especially a thoroughly reliable and easily controlled power is essential for the operation of the hoists.

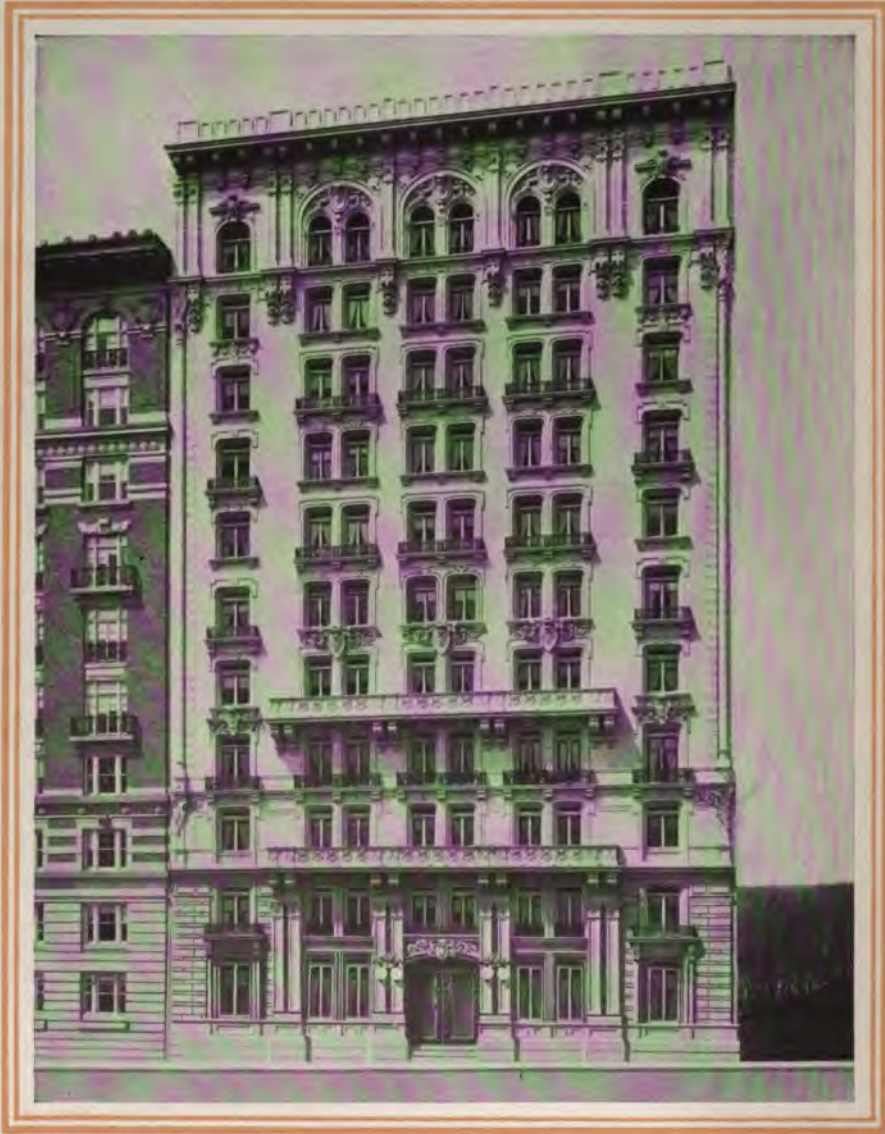
Electric motors are now extensively used for this purpose, and they fulfill every possible requirement. Electrically operated hoists are portable, simple to operate and are always reliable. There is neither smoke nor dirt attending their use, nor is there any offensive noise connected with their operation.

From a small beginning as a domestic appliance the electric iron has invaded commercial establishments. It is used in large numbers in many industries, doing more efficient work than was ever performed by the old-fashioned sad-iron.

Attention has frequently been directed in these columns to the widespread use of electricity for the treatment of ailments. This particular field of application has become a science in itself and now occupies a prominent place in the medical profession. The development of electro-medical apparatus has been so complete that there are now devices for the treatment and investigation of a great many diseases, and the success which has attended this form of treatment has been extremely gratifying.



# Edison Service in Large Apartment Buildings



*Mr G Ajello, Architect*

*Messrs B Crystal & Son, Owners and Builders*

The Peter Minuit Apartment Building, Claremont Avenue near 116th Street, Edison Service  
is used exclusively for light and power

## The Peter Minuit Apartment Building

THIS high-class modern apartment house, situated slightly north of 116th Street on Claremont Avenue and overlooking the buildings, campus and other grounds of Barnard College and Columbia University, has few parallels anywhere in the greater city of New York from the standpoint of convenience of site and quiet abode. On the one side is afforded the pleasure of a promenade or a spin in Riverside Park, on the other, within one block, the convenience of a Subway express station or of a Broadway surface car, or one square further to the east an Amsterdam Avenue car, still increasing the transit facilities.

The structure is an eleven-story, strictly fireproof building of steel construction, on a plot seventy-eight by 100 feet, erected for investment and not for speculative purposes, which fact insures the high character of the workmanship and material employed throughout its construction. The apartments are divided into suites of five, six, seven and eight rooms, with three Roman baths for the larger and two for the smaller apartments, and a private mirrored lavatory in each bedroom.

The beautiful main entrance and public hall are in harmony with the general artistic design of the renowned architect, Mr Gaetan Ajello, and built of Caen stone and marble, the facade being of the early Italian Renaissance carried out in Indiana limestone, white terra-cotta and white brick.

A feature worthy of special note is

the severing of the apartments by doors of steel, which render them absolutely burglar, sound and fire-proof. Parlors, libraries and foyer hall are separated by portiere openings and sliding doors. These rooms are finished in white enamel with solid mahogany casement doors. The lighting fixtures and arrangements have been particularly studied and adapted, though sunlight brightens each room by day. The dining rooms, fitted up either in solid oak or mahogany panels, are cheerfully inviting, as is every other room, comfortably arranged and ample in space. To the mistress of the home the numerous commodious closets, including those for linens, are exceptionally attractive and add to domestic comfort.

The building is elaborately equipped with a vacuum cleaning service, with outlets in each apartment, and modern clothes dryers for free use.

The building is equipped with both passenger and freight elevators.

Messrs B Crystal & Son are the owners and builders.

## Electric Lights in an Ancient City

ELECTRIC lights have recently been introduced into the ancient city of Tarsus, in Asia Minor. The power is taken from the rapidly flowing Cydnus River. About one and one-half miles from the city an eighty-horse-power turbine is made to drive a large dynamo, which furnishes sufficient power for 1,000 lamps of sixteen candle-power each; 450 are now used to light the streets of the city, and the remainder will be furnished to private consumers.



## Dyeing Cloth by Electricity

**A**MONG the tasks imposed in recent years upon that busy servant of man, electricity, is the acting as an assistant in the operation of dyeing.

When cloth soaked in aniline sulphate is placed between two metal plates connected with the opposite ends of a dynamo and an electric current is passed through it the sulphate is converted into aniline black. By altering the strength of the solution and of current, shades varying from green to pure black can be obtained.

In the case of indigo the cloth is impregnated with a paste of indigo blue and caustic alkali. The current converts the insoluble indigo blue, by reduction of oxygen, into soluble in-

digo white which, exposed to the air, again becomes oxidized and turns blue, thoroughly dyeing the cloth that color.—*Harper's Weekly*.

## Electric Piano Drying

**D**OWN in the Panama Canal Zone housekeepers suffer great inconvenience by the excessive moisture in the atmosphere, for it creates rust and mould and has a bad effect on the furniture and draperies. As a protection, it became the custom to keep an incandescent lamp burning inside all pianos to prevent the rusting of the wires and the sticking of the "action." Often lights are kept constantly burning all through the house as an extra protection.—*Selling Electricity*.



One of the Apartments, Peter Minuit Apartment Building



A Corner in One of the Rooms, Peter Minuit Apartment Building

## Electric Irons in a Costume Factory

**M**R E M BLATT, costume manufacturer, 135 Fifth Avenue, has an equipment of fifteen sixteen-pound electric irons, each consuming 740 watts. Mr Blatt states that since installing the electric irons he can turn out better and cleaner work and expects to double the installation before the first of next year.

## Electric Spot Welding

POT welding, now coming into prominence for a great variety of work, is widely different in method and application from ordinary butt welding. These two forms of electric welding have no features in common save the formation of the molecular union under mechanical pressure while the metal at welding point is in heated semi-fluid condition.

In general, electrical butt welding



Electric Irons in the Costume Factory of Mr E M Blatt, 135 Fifth Avenue

## Large Order for Electric Trucks

**P**ETER DOELGER'S Brewery has recently placed an order for six five-ton electric trucks and twelve three-and-one-half-ton trucks, in addition to its present equipment. The three-and-one-half-ton trucks are covered and provided with side doors for the convenient handling of case goods.

is applicable to joining together the ends of bars, rods, forgings, etc. In this case the heating current through the ends of the work across the junction of the two pieces is approximately evenly distributed over the entire area of the abutting surfaces. When the entire stock has reached a welding temperature for a short distance on each side of the point of weld, the two pieces are forced together endwise to form the union.



## The Edison Monthly

Broadly speaking, spot welding is limited to the uniting of overlapped sheets with comparatively large surface areas of metal in contact. Only a small percentage of the actual contact surface is jointed, the welding area being confined to one or more distinct locations which are entirely independent of each other. The heating current does not flow across the entire area of the contact surface as in a butt weld, but is confined to a limited path at each of the so-called "spots." The heating action of the current is thus localized in a restricted area to form a weld, while the remainder of the stock



Another View in the Goldberg Factory



Electric Iron Installation in the Ladies' Costume Factory of Mr J Goldberg, 6 East Thirty-second Street

stays cold. This concentration of heating current may be accomplished in either one of two ways:

The first method, commonly known as "point welding," necessitates the raising of slight independent points or projections on either one or both of the surfaces to be spot welded. These points prevent the entire overlapped surfaces of the stock from coming together, and the contact between them is, of course, made on the projecting points. If current is now caused to flow across the two pieces of work by means of flat current-carrying dies or electrodes (one on each side), the current between them

must obviously be concentrated to the contacting points or projections of the metal. These projections under the heating action of the current almost instantly reach a fusing temperature, and the weld is completed by mechanical pressure exerted upon the dies to force the surfaces of the stock together. The points or projections on the metal may be of any size or shape to obtain the proper condition of assembling or mechanical strength for any particular piece of work. One or more spots may be welded at the same instant with one operation. The principal objection to this method is the necessity of preparing the stock under a punch or press for the welding operation, and the difficulty of assembling some classes of work with projections on the surface of the stock.

With the second method no preparation of the stock is required. The heating current is concentrated to the area of the spot to be welded by means of pointed dies or electrodes, one on each side of the work, whose opposed ends are shaped to the size of the spot weld required for any particular piece of work. The weld is completed as in the first method by means of mechanical pressure to force the dies together.—Abstract of an article by A. E. Buchenberg in the *Electrical World*.

If you are a manufacturer and wish to increase your output and at the same time decrease your operating expenses don't fail to visit the Electrical Show.



Motor-Driven Sewing Machines, Goldberg Factory



### The Sirocco Electric Fan

THE Sirocco Electric Ventilator and Air Filter will either supply or exhaust about five thousand cubic feet of air per hour and requires about one-quarter the current consumed by the ordinary incandescent lamp.

Sirocco Centrifugal Fans are largely used for ventilation, cooling and mechanical draft on modern battleships and cruisers and are also used in offices and residences.

The distinguishing features of the Sirocco fan reside in the blast wheel or runner. This is of drum form, with a large inlet chamber enclosed by numerous blades, which are very long but narrow, and are curved forward. The Sirocco fan is made by the American Blower Company, of Detroit.



The Sirocco Fan in an Office

### Fence Wire as High-Tension Transmission Line

A CURIOUS combination of circumstances, proving that even a lowly barbed-wire fence may serve efficiently as a 25,000-volt transmission line, was the experience of a Michigan hydro-electric company some time ago. The men in charge of a sub-station from which the street railway and the lighting of several considerable towns beyond receive energy, had been given no intimation that the 25,000-volt, three-phase line between them and the generating station was in trouble until some farmers working in a field several miles away telephoned in and reported that one of their number had received a severe shock from a barbed-wire fence on his place, near the high-tension line. The attendants were incredulous that this fence



The Sirocco Fan Arranged for Winter Use

could become charged without some indication at the station, as they reasoned that had a line wire broken and fallen on the fence, the service would certainly have been interrupted. Word of the trouble came in just before noon, and a gang was dispatched to investigate the cause of the electrified fence.

Coming near the charged section they found that the 110-foot span of one of the lower wires of the 25,000-volt, three-phase circuit had broken at a point about one-third the distance from one pole and had fallen so that it hung against the top wire of the fence. The other end of the span had also fallen across the fence further along, its loose end lying in the grass. The result, of course, was a through circuit completed by the fence wire.

The transmission line at this time was carrying about 100 amperes per phase at 25,000 volts, but the loose contacts gave no evidence of distress except for a few faint sparks from time to time. As the transmission was needed for delivering the full load of two towns whose service it was not desirable to interrupt, and as the fence wire which acted as part of the high-tension circuit was fortunately deadened at two posts about one-fourth mile apart, it was decided to patrol this section and warn persons away until midnight, when the circuit could be cut out and the break repaired. This was accordingly done, and the barbed-wire fence carried its share of

the evening peak without any indication of the unusual jumper's existence ever coming to the consumers' attention. From the leakage down the posts while in this condition all of the wires of the fence became dangerously charged for the quarter-mile distance, as an inquisitive neighbor's dog discovered while investigating the unusual excitement on his master's "east forty."—*Electrical World*.

## Wireless Telegraphy

THE wireless service between Glace Bay, Nova Scotia, and Clifden, Ireland, which was interrupted last year on account of the burning of the Glace Bay station, has again been resumed. Many improvements have also been introduced in the new station.



The Sirocco Fan in the Kitchen

# Improved Office Lighting

**D**URING the past two years there has been a decided improvement in office conditions in all large cities. The employers are now wide awake to the fact that cheerfulness and comfort in surroundings are two of the most potent factors in increasing the efficiency of employees.

The first and the greatest step toward better conditions has been taken by improving the illumination. The

illustration shows a section of the extensive offices of a large corporation. In this department there are about twenty-two employees, all doing work which requires very close application. The lighting originally consisted of twenty-six desk lamps and bracket lamps of sixteen candle-power each and three four-arm chandeliers, with a thirty-two candle-power lamp in each arm. With this equipment, fair



A Large Office Lighted with National X-Ray Reflector Company's Fixtures



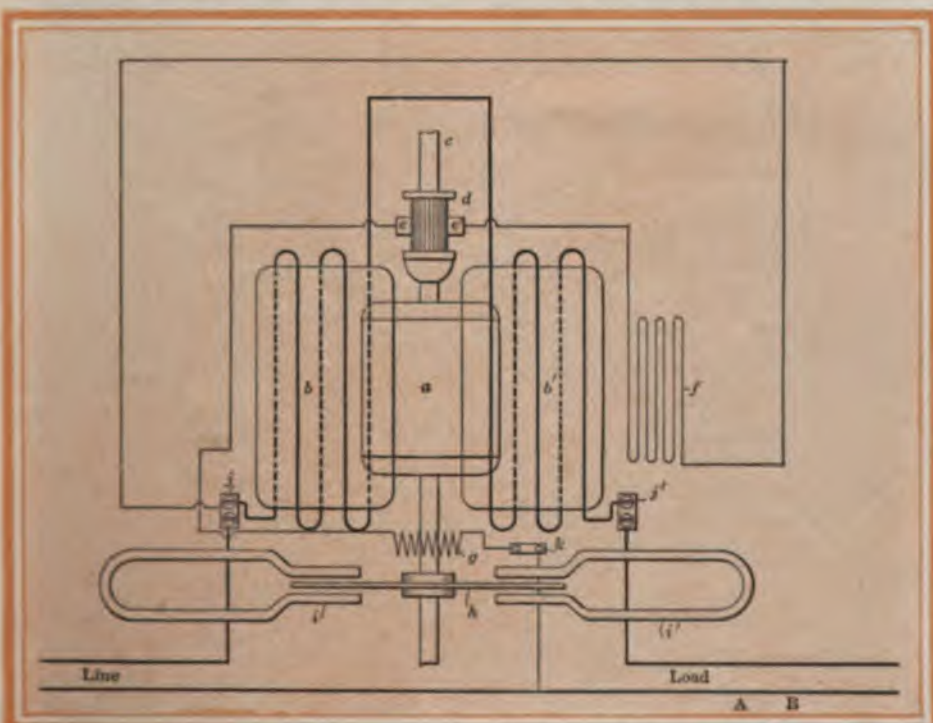
illumination was obtained, but it was localized to the area under each lamp, the rest of the room appearing dark in comparison and a great amount of valuable space was occupied by the desk lamps. The total current consumption was about 2,750 watts, carbon lamps being used throughout.

Indirect illumination was installed about the first of the year, and after

The fixtures were made by the National X-Ray Reflector Company, of Chicago.

### Electricity Meters

A TYPICAL two-wire meter used by The New York Edison Company is shown in the accompanying diagram. It consists of a motor whose armature is connected



Details of a Two-Wire Motor Used by The New York Edison Company

several months of constant use has proven to be even more satisfactory than was originally anticipated. The illumination is clear and strong, and at the same time all glare from high-power illuminants is entirely eliminated. The photograph, which was taken by this light alone, expresses better than words the present cheerful condition of the offices.

in series with a resistance and compensating coil to the mains and whose field coils are connected in series with the supply circuit. The rotation of the armature actuates a recording mechanism.

The speed of rotation is regulated by a metal disc on the armature shaft, which passes between the poles of permanent magnets.

If, for example, a lamp be lighted at A, the speed of the meter armature will be in exact proportion to the energy consumed. If an additional load, such as a motor or more lamps, be turned on at B, the armature will increase in speed accordingly. Conversely, if there is a load at B and it is turned off the speed of the armature will decrease.

Two and three-wire meters are alike in principle, and the accompanying diagrams will serve for both types, with the exception of the line connections, which, of course, differ somewhat. An enumeration of the essential parts follows:

- a armature.
- b and b' series field coils.
- c armature shaft which drives train of gears operating the index.
- d commutator.
- e and e' brushes.
- f shunt field coil.
- g resistance.
- h copper or aluminum disc.
- i and i' permanent magnets.
- j and j' terminals.
- k shunt connection.
- A and B load, such as lamps and motors.

### A Hilly Road for an Electric

**M**R L C MYERS, of the East End Automobile Company, Pittsburg, recently made a trip in a Waverley electric to Uniontown, Pa, going first by boat to Brownsville and thence to Uniontown over a road that has few equals in the way of hills. Starting in Brownsville is the first hill, one and one-fourth miles long with a ten per cent grade. From there to Uniontown there is not fifty feet of level road,

as it runs up one hill and down another, some of which are more than ten per cent. To describe this road properly one must think of gigantic



Building of the L. E. Waterman Company, Manufacturers of Fountain Pens, 34-40 Fletcher Street, New York. A large private plant has recently been abandoned and Edison Service adopted

saw teeth. A weight of more than five hundred pounds was carried on this trip. This included two men, baggage and a crated rheostat. After arriving at Uniontown, more than forty miles was made over the streets. This was all done on one charge, including the run of five miles from the garage to the boat.

The next morning, June 24th, the most marvelous feat that any electric

## Improved Street Lighting in Yonkers

THE improved lighting of Main Street, Yonkers, which was illustrated in the August MONTHLY, has proved such a success that many merchants report greatly increased sales in the evenings. One merchant in particular reports an increase of twenty per cent in evening trade.



Part of the Abandoned Plant, Waterman Building

car ever made was accomplished on a hill running up the mountain, a rise of 1,500 feet in six miles, three miles of continuous grade without one foot of descent. Two people were carried on this trip. This was done in thirty-one minutes, and the motor was in as good condition on reaching the summit as it would have been had the car been running over the level streets.

Well-lighted streets, especially business streets, will always tempt evening promenaders to stroll on them, attracting their attention to goods for sale and generally inducing them to buy. The case of Yonkers is only one more added to the long list of towns where electric illumination of the business section at night has proved a strong incentive to increased sales.



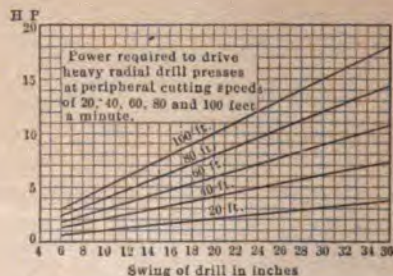
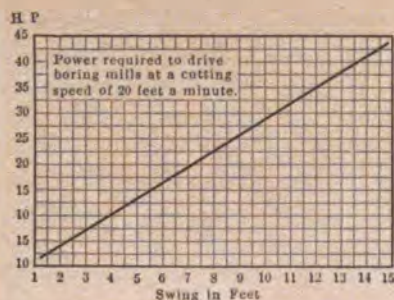
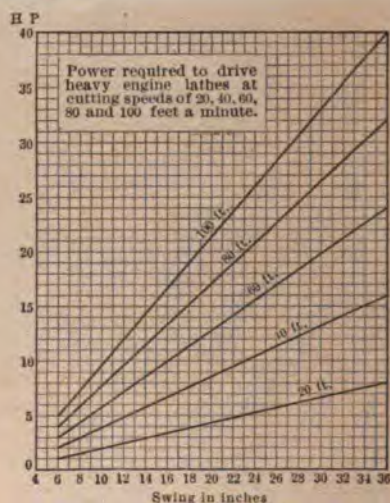
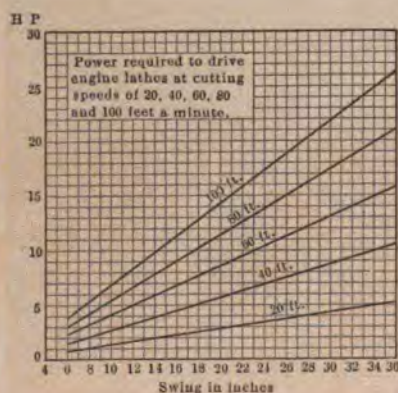
# Application of Motors to Machine Tools

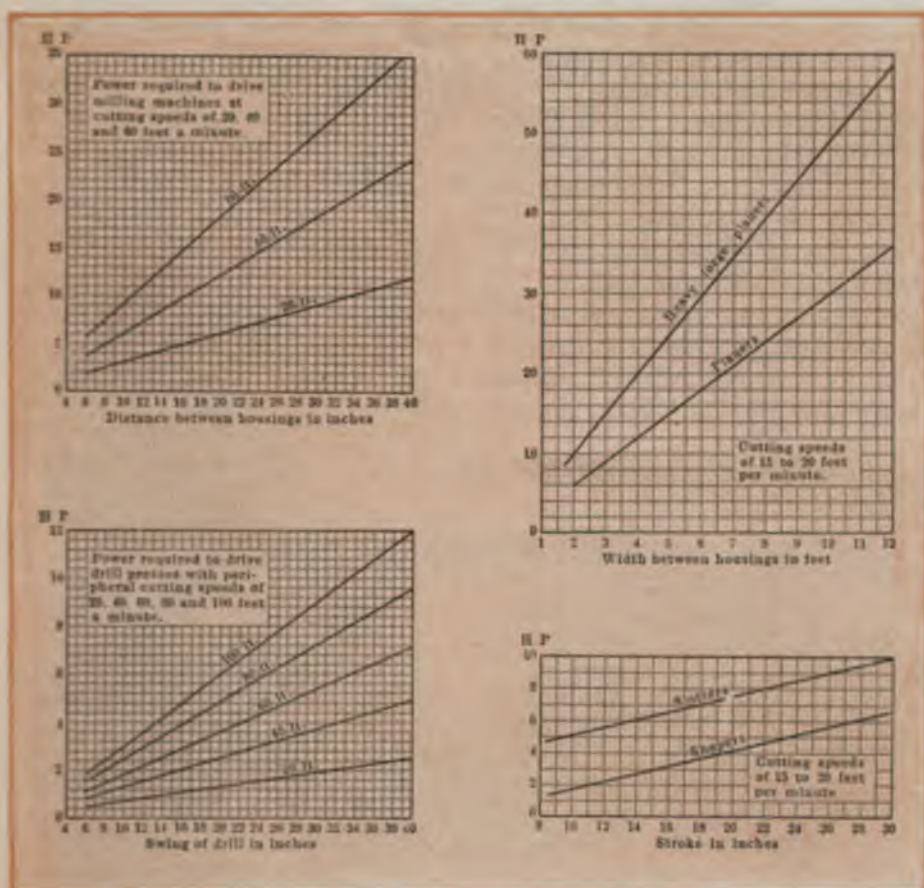
THE curves showing the power requirements of various machine tools are made up from formulæ recommended by the Westinghouse Electric and Manufacturing Company as representing the average American practice under normal operation.

The operating conditions vary so greatly that it is impossible to give exact figures for horse-power which should be used in all cases.

The curves are based on the assumption that one tool of water-hardened steel is used. The several diagonals represent various cutting speeds.

In general, machine tools may be divided into two classes, those with direct rotary motion of either work or cutter and those with reciprocating motion of either work or cutter. The first head comprises lathes, boring mills, milling machines and drill presses, while the second class com-





prises planers, shapers, slotters and machines of similar character.

In general, all motors to be used for lathes, boring mills, drill presses, etc., should be shunt-wound variable speed, with good inherent speed regulation.

Machines having a reciprocating motion are, from their nature, less productive than machines having a purely rotary motion of either cutter or work. For this reason it is especially important that machines having a reciprocating motion be run to the limit of their capacity.

This, of course, requires an adjust-

able speed motor, similar to the motor described in connection with rotary motion machines, except that in case of machines having a reciprocating motion the compound-wound motor should be invariably used. The compound-wound motor has the advantage that at the instant of reversal of the machine tool, when the torque required of the motor increases very considerably above the normal, the compound winding assists materially in holding the inrush of current within reasonable limits; and this may be further improved by the use of a fly-wheel.



### Richmond Suction Cleaner

**T**HE Richmond Suction Cleaner shown in the illustration is equipped with a universal motor that will operate on either direct or alternating current by attaching the cord with plug to a lamp socket.

The Richmond weighs about ten pounds and is therefore easily carried about. It is only necessary to slide the cleaner easily and lightly over the floor. A powerful suction fan in the cleaner does all of the work, cleaning not only the floor covering, but the floor beneath as well. It will pick up loose threads and lint, scraps of paper, matches, and in fact all forms of dirt. The sole selling agent is The Richmond Sales Company, 160 Broadway, New York City.

### The Detroit Electric

THE Anderson Carriage Company, manufacturers of the "Detroit Electric," has opened a New York office, show-room and service station at 2236 Broadway.

The Detroit has made some excellent records for long-distance travel; in one instance a regular stock car ran from Detroit to Atlantic City, a distance of 1,060 miles, averaging 84 miles a day on a single charge. During this trip the roads encountered were exceedingly muddy. The car carried two passengers, together with their baggage.

A second record was made by a stock car in the Munsey endurance run in September, 1909, from Washington to Boston, covering a distance of 671 miles in six days. For this performance it was awarded a certificate of perfect score, not having a

single mechanical trouble or broken parts of any nature.

The Anderson Company will establish service stations in New York similar to their successful Detroit and Chicago stations.



The Richmond Suction Cleaner

### Electric Radiators

OLD nights and mornings will soon be here. It is too early in the season to start the heating system, but some means for supplying heat in the bedroom and bathroom is essential. The electric radiator fulfils this need. It is portable and can be taken from one room to another with ease. It will take the chill out of the atmosphere of a room in a few minutes.

# The Care and Operation of Edison Storage Batteries

## PART I

EDISON Storage Batteries are shipped in a discharged condition, and must be charged fifteen hours at the normal rate before they are used.

This overcharge should be repeated once every two weeks for the first two months, and once every two months thereafter.

The normal charge rate of the A-4 type is thirty amperes, and of the A-6 type is forty-five amperes.

The normal rate may be maintained throughout the charge. It is not necessary, under ordinary circumstances, to cut down or diminish the rate as the charge progresses; but this should be done when the heating is excessive.

Charging may be done at double the normal rate for a one-hour boost, provided the temperature of the battery is not too high.

If the charging voltage available is such that the normal rate cannot be maintained, the battery may be charged at a lower rate for a longer length of time.

Very low charge rates are not good. The minimum rate that should be maintained throughout a charge is twenty amperes for the A-4 type of cell and thirty amperes for the A-6 type. *Toward the end* of a charge

the rate may be cut down to one-third the normal, in case the heating is excessive.

A seven-hour charge at normal rate is taken as a normal charge. But this is not fixed, and the length of charge may be varied from four to ten hours



Electric Ambulance Made by the General Vehicle Company

at normal rate, according to amount of work to be done, as explained under "*Output and Efficiency.*"

The voltage of an *Edison Storage Battery* has a *general* tendency upward during charge, although it may recoil a few points in the first hour or two. When the state of full charge is reached the voltage assumes a constant value. It is therefore possible, after some experience, to determine when a battery is charged by making careful observations of its voltage. No absolute figure can be given for the

full-charge voltage, as this is varied by the battery temperature, condition of the electrolyte, etc; but *under normal conditions* the voltage across the battery terminals at the end of the charge will average 1.80 to 1.85 volts per cell at the normal current rate.

As a general rule it may be said that a battery is practically charged when—all conditions being normal—the voltage has exceeded 1.8 volts per cell

dropping back to normal voltage, so that, with a little experience, one can easily recognize this false indication and ignore it.

Overcharging necessitates frequent filling of cells, wastes current and is apt to cause excessive heating. For these reasons should not be made a practice of except at intervals recommended, or occasionally when an extra long discharge is desired. Overcharg-



A Fine Example of Interior Tungsten Lighting in the Large Furniture Establishment of Mr Robert Miller, Jr, 246 West Forty-second Street

and has remained constant for a period of thirty to forty minutes.

The difficulty in charging by voltage is that under certain conditions the voltage may rise to an abnormal value early in the charge and mislead one into thinking that the state of full charge has been reached. When this abnormal rise occurs it will be noticeable during the first hour or two of charge, and is usually followed by a

ing is harmless to a battery as long as the temperature rise is not too great.

The temperature of cells during charge should never be allowed to exceed 100 degrees Fahr, as their life will be shortened and their immediate output will be temporarily impaired thereby.

It will pay the user to adopt some means of keeping the temperature down during charge, such as cooling

by a desk fan, as recommended under "*Temperature.*"

The output will not be so good if the temperature during charge is below seventy degrees Fahr; but the nearer the temperature can be kept to this minimum figure the better will be the results, both as to immediate output and life.

When a battery has remained idle for a considerable length of time the first charge before going into service should be long.

Never hold a lighted match or any naked flame near a battery while it is charging or immediately afterwards, as an explosion of the evolved gases might ensue.

## OUTPUT AND EFFICIENCY

The rated normal output of the A-4 type cell is 150 ampere-hours, and of the A-6 type 225 ampere-hours.

The capacity of an *Edison Storage Battery* increases for some time after it has been put into service. A battery will give not less than the rated output when new, if charged normally; but after working some time it will have better efficiency and will give a greater output.

This process of self-forming continues over a period of from one to three months of regular service, depending on the conditions; and it is partly to assist in this forming-up that overcharges must be given at intervals, as recommended under "*Charging.*"

A properly formed battery, besides having higher capacity, will have a longer life than one not properly treated. It is therefore of great importance to the user, as a matter of ultimate economy, to follow closely

the instructions as to overcharging.

A valuable feature of the *Edison Storage Battery* is that it always has a reserve capacity, which may be utilized when necessary by extending the length of charge. The highest practical limit of output will be reached when a battery is charged ten hours at the normal rate; and its value will be, for a fully formed battery, perhaps thirty per cent more than the rated output.

Inside of this maximum working limit it is optional with the user as to the length of charge he shall employ, and this should be regulated according to the output required in any particular service.

It should be borne in mind, however, that in utilizing the highest available capacity of a battery efficiency is sacrificed; that is, charging current is wasted. The wasted current goes to decompose water which escapes as gas, and consequently distilled water must be added to the cells more frequently than under normal conditions. Long charges also are likely to cause excessive heating, and care should be taken to keep this within the prescribed limits.

On the other hand, if very high output is not required, and a battery will do its work when charged, say four to seven hours at normal rate, the current efficiency will be very high and filling will not have to be attended to so frequently, while the amount of heating will be small.

A seven-hour charge at normal rate is arbitrarily chosen as the normal charge, the reason being that under these conditions the highest output obtainable with little sacrifice of efficiency is realized.

# The Show

Fourth Annual New York Electrical Show

# The Time

October 10 to 20, 1910

# The Place

Madison Square Garden, New York

# The Object

To promote the sale of electric current-consuming devices  
and familiarize the public with their uses

Space can be arranged for by addressing

**The Fourth Annual  
New York Electrical Show**

124 West 42d Street, New York



# THE EDISON MONTHLY

OCTOBER



1910

THE NEW YORK EDISON COMPANY  
55 DUANE STREET NEW YORK

# The New York Edison Company

## GENERAL OFFICES

55 Duane Street

Telephone Worth 3000

BRANCH OFFICES	TELEPHONE
424 Broadway	: : Spring 9890
115 Delancey St	: : Orchard 1960
124 West 42d St	: : Bryant 5262
839 Third Avenue	: : Plaza 6543
27 East 125th St	: : Harlem 4020
360 East 149th St	: : Melrose 3340

EMERGENCY NIGHT AND  
SUNDAY CALL---BRYANT 145

### *Territory Served by the Various Supply Offices*

FIRST DISTRICT, 424 BROADWAY  
All territory South of Eighth Street West  
of the Bowery  
TELEPHONE No. SPRING 9890

DELANCEY STREET  
DISTRICT, 546 PEARL STREET  
All territory South of Eighth Street East  
of the Bowery  
TELEPHONE No. WORTH 3000

SECOND DISTRICT  
115 WEST 30th STREET  
Eighty Street to Fifty-ninth Street, both  
inclusive, to the East to the North River  
TELEPHONE No. BRYANT 145

THIRD DISTRICT  
115 WEST 117th STREET  
North of Fifty-ninth Street, from East to  
North River, to and including One Hun-  
dred and Fifty-sixth Street, east of St  
Nicholas Avenue, and to the south side  
of One Hundred and Thirty-fifth Street  
west of St Nicholas Avenue  
TELEPHONE No. RIVERSIDE 4886

BROOKLYN DISTRICT  
115 STREET AND ELDER AVE.  
All territory within the Borough of  
Brooklyn  
TELEPHONE No. MELROSE 3340



*"At Your Service"*





# The Edison Monthly



October

1910

VOLUME III

NUMBER 5

## CONTENTS

	Page
Editorial - - - - -	122
The Brogan Building - - - - -	125
A 135,000 Volt Transmission System - - - - -	125
Electric Elevators in a Warehouse - - - - -	127
The First Station of The New York Edison Company - - - - -	128
Harvesting With Electric Vehicle - - - - -	129
A Correction - - - - -	129
The Keller Duplex Vacuum Cleaner - - - - -	130
Record of a Five-Ton Coal Truck - - - - -	131
Rogers Therapeutic Lamp - - - - -	132
New Mirror Light - - - - -	133
Siemens & Halske Electrolytic Bleaching System - - - - -	134
Rear Admiral Van Reypen in His Waverley Electric - - - - -	135
A Retrospect - - - - -	135
Welding of Metals by Electricity - - - - -	136
An Electric Automobile Race-Track - - - - -	138
Metropolitan Realty Building Adopts Edison Service - - - - -	140
Eleven Billion Telephone Messages - - - - -	142
A Unique Lighting Fixture - - - - -	143
Lifting Magnets - - - - -	144
Apparatus for Charging Automobile Batteries - - - - -	146
Hospital Now Uses Electric Ambulances - - - - -	148
The Care and Operation of Edison Storage Batteries - - - - -	149

# Editorial

## *The Edison Monthly*

Published by

*The New York Edison Company*

General Offices

55 Duane Street

New York City

President

ANTHONY N BRADY, 54 Wall Street

Treasurer

JOSEPH WILLIAMS, 55 Duane Street

Secretary

LEWIS B GAWTRY, 4 Irving Place

A great deal of popular interest has been aroused in recent years through the wonderful advances in medical science, and the vast importance of scientific cleanliness and purity of the food we eat and the air we breathe has become recognized.

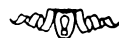
The germ theory is now a fact established beyond dispute, and to such an extent that it is generally admitted that there is no need of discussing the degree of danger involved, or the comparative harmful character of this or that germ. The point is to eliminate the chance of any germs being taken into the human system.



It is a realization of this fact which has been one of the chief forces at work to advance means for fighting germs, first in the hospitals and more recently in the home or places where men congregate. Once admitted that the germ theory is correct and that dangers a thousandfold more insidious and terrible than a railway accident can lurk in a single house or church in the form of contagious germs, we are forced to wonder why

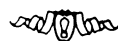
in an age when we discuss those wonderful inventions, wireless telegraphy and aerial navigation as ordinary events, and seriously look forward to the transmission of sound and sight without wires, that we still putter about our houses or offices with a brush and broom the way they did centuries ago.

Strange as it may seem, it is only within the last few years that this subject has received any considerable attention from inventors and constructive engineers.



Within the last two years a new era has dawned, and we are trying to think of a "dustless age." Even now there is a great popular demand for a home machine.

As in the beginning of every art, in the early application of the principle the devices employed have been proven faulty in the extreme and, looking back on them, some even laughable; however, from these beginnings have grown the few satisfactory forms which are now standard.



Theoretically, vacuum cleaning met the conditions set for sanitary cleaning admirably, but certain restrictive factors arose when attempts were made to put it into actual practice, which until very recently have limited its use to hotels, institutions and a few other places when expense of installation and operating cost could be ig-

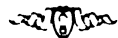


nored. But the modest home, the small store, the many smaller hotels and thousands of city apartments remained untouched, and in them the brush and broom, with their whirling clouds of germ-laden dust and the endless, fruitless strain of it all have continued.



During the protracted hot wave of the past summer, horses dropping dead in the streets was a daily, almost hourly occurrence. To say nothing of the suffering of animals when drawing heavy loads in the intense heat, the financial loss incurred by their death is a factor of considerable importance.

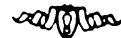
Electric commercial wagons eliminate this continual danger of loss, as they are unaffected by climatic condition, and perform their work equally well in summer or winter. The owners of horse-drawn trucks meet serious difficulty, and obstacles to quick deliveries in the winter months, as sleet-covered streets or heavy snow make it impossible for horses to move loads quickly, and there is the ever-present danger of their falling on the icy pavements and sustaining injuries that may prove fatal.



The winter of 1909-1910 was one of the most severe in recent years, but, despite this fact, reports from all over the northern part of the country gave records of the excellent performance of the electric, where horses and gasoline vehicles failed completely to weather the severe storms.

The up-to-date business man is rapidly realizing these facts, and the increase in the use of the electric com-

mmercial wagon has been almost phenomenal within the past decade. At this rate of increase the time will soon come when the truck horse is the exception rather than the rule for moving merchandise.



To the average man welding a bar of iron brings up visions of a dirty and grimy blacksmith shop with a leather-aproned, muscular individual swinging a sledge-hammer and making a lot of noise on an anvil.

An ordinary welding job is an expensive process. The two pieces of metal are heated in the forge and flattened at the end or scarfed, heated again, and one piece laid on the other while the welding compound is sprinkled over the metal which is then hammered together.



Electric welding is done differently. Two iron bars are placed end to end in the machine and the current turned on by throwing a switch. A lever is then moved, and the job is finished.

The old way required thirty minutes and the services of a blacksmith and helper at a cost of approximately thirty cents. An electric weld can be made by a boy in one minute.



The electric welder accomplishes a thousand things that a blacksmith shop cannot. It is always ready for business without building fires. It is not, however, designed to take the place of a blacksmith, but is intended for the manufacturer who has thousands of pieces to weld which are similar in form.



The New Brogan Building at the Corner of Fourth Avenue and Twentieth Street Edison Service will be used exclusively for light and power. This picture gives a good idea of the rapidly changing skyline of Fourth Avenue

## The Brogan Building

**T**HE new Brogan Building, at the northeast corner of Fourth Avenue and Twentieth Street, has a frontage on Fourth Avenue of sixty-nine feet, with a depth in Twentieth Street of ninety feet. The height is sixteen stories, a total from curb to roof of 216 feet. On the first story there will be stores and showrooms, the second story will be for offices, and the balance of all the upper floors for flats. There are two entrances, one on the Fourth Avenue front and one at the rear in Twentieth Street, each leading to a battery of elevators, of which there are four in all. There is a vault under the sidewalk along the entire Twentieth Street side. The construction is absolutely fireproof, with fireproof floors and partitions, and no wood or other inflammable materials will be used. The floors are cement or fireproof wood. The first three stories of the exterior are granite, with light brick and terra-cotta above. The lines of the French Renaissance period have been followed in the design, with proper adaptations for the wants of the present age. In its planning and artistic effect Mr. Brogan has one of the finest business buildings erected in the uptown commercial section, and every feature is the best the architects were able to make it. Charles Brogan (Inc), No. 27 West Twenty-seventh Street, is the owner, and Messrs Neville & Bagge, 217 West 125th Street, are the architects.

Edison Service means modern, efficient, economical methods in the factory, store and home.

## A 135,000 Volt Transmission System

**T**HERE is now under construction at Cook Falls, Mich., on the Au Sable River, a 9,000-kilowatt hydraulic power station which is intended as the starting point of a 135,000-volt transmission system which will extend to Flint, 125 miles distant, and later to Battle Creek, sixty-five miles farther. The Cook Falls plant is the first of a series of four or five which, it is reported, will be established on the Au Sable River, and the available head there is about forty feet. The generating equipment will comprise three 3,000-kilowatt sixty-cycle alternators mounted on horizontal shafts driven by waterwheels, with eight runners to each shaft. The voltage of these generators will be stepped up to 135,000 volts by delta-connected transformers installed at one end of the generator room.

The dam and power-house foundation will be of solid concrete with molded water passages and draft tubes. The power house will be of brick above the water levels, and will have a floor space forty by 110 feet. The forty-foot dam will impound a lake covering 2,000 acres, which will store water to meet the daily variations in the station load. The Au Sable River has an uncommonly uniform flow, averaging 1,100 cubic feet per second. The records of ten years show that at no season has the flood flow exceeded four times the minimum. This regularity of flow is attributable to the springs, emerging from the clay strata underlying the sandy surface of the northern part of the peninsula.

## The Edison Monthly

which supply the river; there are only two insignificant tributaries to the stream in its whole length above the water-power site. The transmission line will be a single three-phase circuit of three No O copper wires carried on suspension-type insulators hung from the cross arms of fifty-five foot tripod steel towers. These towers are generally similar to those of the 110,000-volt transmission into Grand Rapids. Two braced bracket arms extend from one side, and one arm from the other, carrying the wires at angles of a tipped isosceles triangle having a twelve-foot base and seventeen-foot sides. The lowest wire will be forty feet above the ground. The suspension insulators to be used will have eight disks linked in series, each disk having



The Electric Elevator as Seen from the Front  
W & J Sloane's Warehouse

been tested to withstand continuously 75,000 volts, and subjected to 100,000 volts for a brief period. Each complete eight-disk insulator measures



Side View of One of the Electric Elevator Equipments in the W & J Sloane Warehouse

fifty-two inches from the tower hook to the line conductor.—*Power and the Engineer.*

## Electric Elevators in a Warehouse

**T**HE American Elevator Company has recently installed in the W & J Sloane Warehouse four electric elevators with a travel of 116 feet each. Two of the elevators have a capacity of 5,000 pounds each and are driven by twenty-five horse-power motors. The remaining two

elevators have a capacity of 3,500 pounds each and are driven by twenty horse-power motors.

The running speed of the elevators is 100 feet a minute. The illustrations give a good idea of the motors and driving mechanism.

The Sloane warehouse is a large modern building, and is supplied throughout with light and power by Edison Service. The consulting engineers, Messrs Ewing, Bacon & Henry, advised the use of central station service as more satisfactory and economical than a private plant.



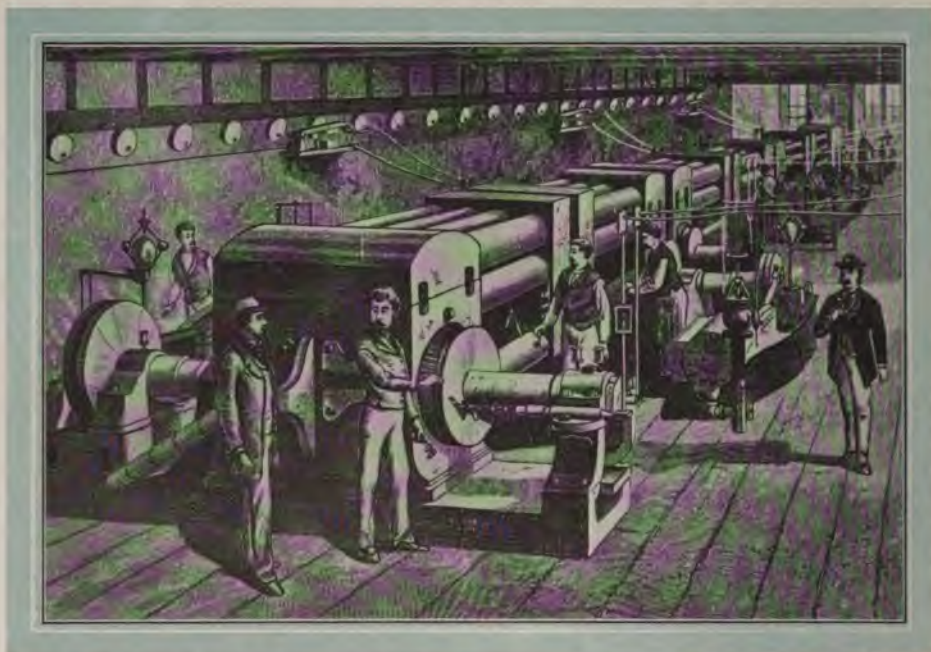
The W & J Sloane Warehouse, Eleventh Avenue and Twenty-ninth Street. Edison Service is used for 2,000 lights, for charging vehicle storage batteries, and for operating an installation of American Elevator Company's electric elevators. Messrs Ewing, Bacon & Henry were the consulting engineers



## The First Station of The New York Edison Company

THE great system of The New York Edison Company has grown from the original Pearl Street Station, containing when started six steam units, the historical

ises began in July, 1881. The boilers were started on June 29, 1882; the first engine, installed for operating a coal conveyor, was placed in service June 30th; the first dynamo was



The First Edison Station in New York. Erected in 1882 on Pearl Street near Fulton Street. Reproduced from an old wood cut in the Scientific American of August 26th, 1882

"Jumbos," and supplying current to an underground system of less than fifteen miles, and mains and feeders occupying a territory of which Wall Street was the southern boundary and Nassau Street the northern, about a mile square.

Work of laying the street mains and wiring prospective customers' prem-

started on July 5th, and the first current was generated July 8th, supplying 1,000 lamps arranged in a bank on one of the upper floors. The underground system was connected and tested during July, and on September 4, 1882, at three o'clock in the afternoon, the station was placed in operation.

### Harvesting With Electric Vehicle

THE electric vehicle operating under rather unusual circumstances is described under the above heading in a recent issue of the *Electrical World*, which says in part:

electric truck for delivering trees and shrubs to the depot, the truck returning loaded with fertilizer and supplies for the nursery. During the harvest season this same truck is utilized in harvesting the hay and wheat.

"The truck is of the standard type built by the General Vehicle Company."



Christ Congregational Church, Grand Concourse and 175th Street, Bronx. Edison Service is used for light and power. This is one of the many old edifices in the city which are being modernized by the use of electricity

"Rochester, N Y, is the center of the nursery business and is known throughout the State as the 'Flower City.' The nurseries of Brown Brothers are located about four miles from the business section of the city, and during the shipping season the firm employs a three and one-half-ton

### A Correction

In the August MONTHLY the formula for determining the power factor of a circuit was given as

$$\text{Power factor} = \frac{\text{Amperes} \times \text{Volts}}{\text{Watts}}$$

It should have read

$$\text{Power factor} = \frac{\text{Watts}}{\text{Amperes} \times \text{Volts}}$$

# The Keller Duplex Vacuum Cleaner

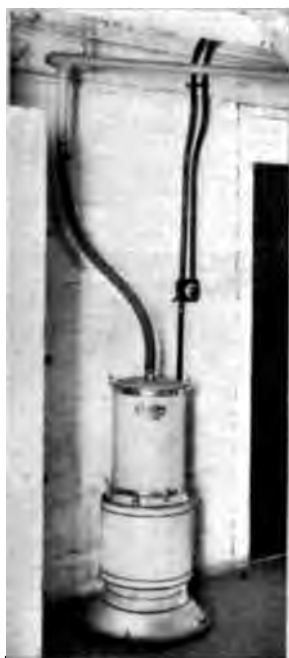
**T**HERE is a growing demand for a vacuum cleaner having a larger capacity than portable machines, which can be placed in the cellar or basement and put out of the way like a furnace, yet so arranged that it can be started or stopped by the maid or mistress in the home or the porters in the hotel or other buildings, without the necessity of going to the cellar to stop and start or take care of the machine.

The illustration gives a very good idea of the "Keller Duplex" Single Sweeper Stationary Vacuum Cleaner, which has been developed to meet these conditions. As can be seen, it is a compact and exceedingly simple single piece, consisting of a wide circular base with two cylindrical sections superimposed. The lower section contains the motor and operating parts, the upper section the dust receiver and separator. The machine is entirely self-contained, requires no foundation, avoids the necessity of any water piping or sewer connections, and the method of separating the dust from the air and cleansing the air is so thorough that the exhaust does not have to be run to the outside or be connected with any chimneys or smokestacks.

To set it up all that is necessary is to roll it into position, connect two wires with the wiring system in the house, fasten the rubber tube on the end of the house piping and it is ready to operate. Owing to the peculiar type of vacuum pump employed and the straight line arrangement, with one pump above and one below and the motor between; the absence of any gears, links, chains, belts or other



Vacuum Cleaner Outlet with Hose Attached



Keller Duplex Vacuum Cleaner

friction producing devices—or, in other words, the direct application of the full motor-power to the work in hand—it is possible to use a one-fourth horse-power motor, and yet obtain results which heretofore have required from three-fourths to one horse-power.

One of the principal advantages of this arrangement, aside from the lower first cost, is that the machine can be operated directly from the house wiring on the ordinary lighting circuits without the necessity of running special wires from the electric light company's mains to the house.

It also simplifies the arrangements necessary for starting and stopping the machine, because the Fire Underwriters' regulations permit a one-

fourth horse-power motor to be started and stopped by the use of push or snap switches.

The equipment of tools which is furnished with this machine is larger and more complete than any yet offered and includes every device necessary for cleaning of any form which may arise in the average house, apartment, hotel, store, garage or elsewhere where this machine can be used.

The machine is manufactured and sold by the Keller Manufacturing Company, of Philadelphia, which for fifteen years has been engaged in the manufacture and sale of compressed air and vacuum apparatus. It is covered by very broad basic patents, and as a further precaution is licensed under the fundamental Kenney vacuum cleaning patents. The Keller Manufacturing Company has prepared a very complete pamphlet illustrating and describing this machine in detail, copies of which can be obtained on application.

## Record of a Five-Ton Coal Truck

THE following report summarizes the performance for one month of the General Vehicle five-ton capacity electric coal truck in the service of the Curtis-Blaisdell Company of New York City:

Working days . . . .	26
Coal delivered . . . .	963 tons
Cyclometer reading . .	721 miles
Daily tonnage . . . .	27 tons
Daily mileage . . . .	28 miles
Average trip . . . .	5.7 miles

During this period not a day's service was lost by reason of failure or necessity of repair of any part of the vehicle.



### Rogers Therapeutic Lamp

**T**HE lamp, mounted in an open socket to permit free expansion and contraction, is installed in a hood having reflecting surfaces at different angles, and with an inner reflector surrounding the neck of the lamp.

This arrangement changes the angularity of the rays at the proper point to produce Rho rays.

The lamp operates equally well upon a direct or alternating current, and is made for any voltage between 95 and 220. At 110 volts the 500-candle-power lamp consumes 1,000 watts. The 600 candle-power lamp consumes about 1,500 watts.

Mr G E Rogers, formerly Demonstrator of Anatomy in the University of New York City, after experimenting with light for many years, produced in 1899 a structure by which the angularity of rays of light emanating from a high candle-power incandescent lamp were changed to produce and project within a predetermined area, non-parallel beams crossing each other in sufficient numbers to form one or more very brilliant spots. These spots are the penetrating points which are referred to as "Rho rays." When the brilliant spots are projected upon the human body, they not only penetrate, but pass entirely through the tissues, including the bones.

One of the most interesting facts connected with the discovery of the

"Rho rays" is the manner in which pathogenic germs are destroyed. Previous to this discovery scientists were practically agreed in the opinion that these germs were destroyed by some form of chemical action produced by contact with the ultra-violet rays.



Patient Undergoing Treatment with a Rogers Therapeutic Lamp

This belief was so universal that all invention along these lines was confined to methods of producing these rays, either in greater quantity or at less expense. Nevertheless the whole matter is very simple.

Farmers and poulterers know that



if a fowl's egg be agitated with any unusual degree of severity it will not "hatch"; its vitality will be destroyed by such vibrations. Upon microscopical examination of an egg which has been treated in this manner it will be found that all its various parts remain intact, excepting the germinal cell, which is largely composed of protoplasm and a little nuclein.

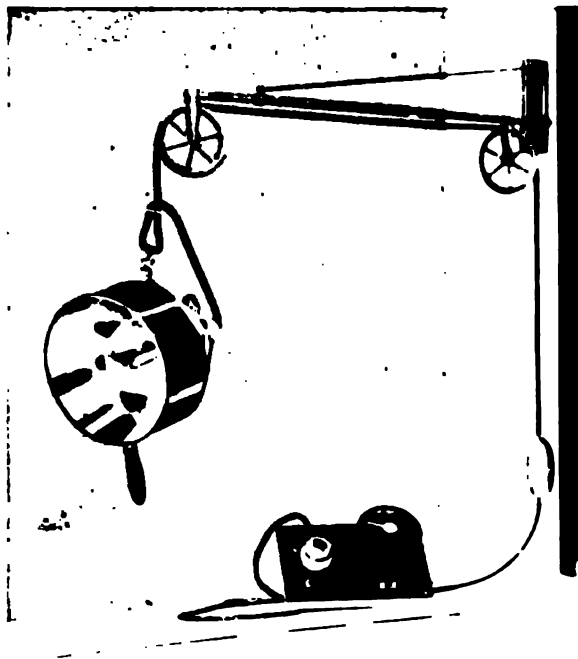
The protoplasmic portion will appear flacculent or granular, according to the degree of agitation to which it was subjected. Here is positive proof of the destruction of this class of organisms by mechanical action. Applying this principle to pathogenic germs similarly constituted, the same results are obtained—disintegration of the protoplasm, granulation and death. It should be remembered that this method of destruction applies only to those germs which contain protoplasm of a low order of organization. The higher organisms are unaffected.

Further particulars of therapeutic lamp treatment can be secured from the Rogers Therapeutic Lamp Company, 382 Second Avenue, New York.

For a chilly morning an electric radiator is just the thing.

## New Mirror Light

IN the building of fine homes the most urgent call is for latest improvements and convenience. Nowadays the up-to-date architect knows of every advance in electrical equipment, and the old-time fixture has given way to the modern dome. Nowhere is advancement better illustrated than



Rogers Therapeutic Lamp

in the insertion in the wall of an electrically lighted mirror. This is a product of the Federal Electric Company and is adapted to bathroom and dressing chambers. The light is so placed as to be capable of adjustment at any height, and casts no glare. It renders the difficult feat of shaving easy, quick, comfortable, pleasant—even with a safety-razor—safe.

### Siemens & Halske Electrolytic Bleaching System

THE term "electric bleaching" means the use of an electro-chemically produced bleaching fluid (sodium hypochlorite), called "electrolyte bleach lye," which, be-

braces the linen, cotton and artificial silk industry, including laundering and chemical cleaning, as well as the entire paper and cellulose industry.

The advantages of electric bleaching are briefly as follows: Clean, convenient, uniform and reliable operation; best preservation of the fibres



Churchill's Cafe and Restaurant, at Night, Showing the Electric Signs and Excellent Illumination of the Building. This is one of the most attractive buildings on Long Acre Square

cause of its great and numerous advantages, is coming into use in place of the familiar bleaching agents used up to the present time.

The field of application of electric bleaching extends over all fibrous materials of vegetable origin; it em-

braces the linen, cotton and artificial silk industry, including laundering and chemical cleaning, as well as the entire paper and cellulose industry. The advantages of electric bleaching are briefly as follows: Clean, convenient, uniform and reliable operation; best preservation of the fibres

The Siemens & Halske apparatus

can be adapted in all respects to the prices of power and salt, so that the electrolyte bleach lye produced by this system is usually considerably cheaper than the corresponding amount of bleaching fluid previously used. In introducing electric bleaching the bleaching arrangements and processes previously in use can be retained; in fact, in the practical operation certain simplifications and savings in cost may be obtained.

The electrolyzers are built according to the patents of Dr. Karl Kellner. One type consists of sandstone vessels which, by means of vertical glass partition walls, are sub-divided into a series of decomposition cells so arranged next to each other in steps that the salt solution, and hence the bleach lye, must circulate through all the cells in a horizontal wave-shaped path and be subjected to the action of the electric current in each cell.

The electrodes, of platinum iridium wire gauze, are so placed that the anode (positive electrode) is always below the kathode (negative electrode). This arrangement insures the best economy of the salt and the electrical energy and makes a thoroughly rational method of operation possible. The electrodes themselves are connected "bi-polar"—that is, no connections are required between the individual electrodes inside of the apparatus. Only connection contacts are necessary. These are so designed and mounted in the apparatus that there is no chance of their destruction due to the effects of the electrolytic process. The electrodes, glass parts, etc., can be quickly and easily removed from the electrolyzer at any time.

## Rear Admiral Van Reypen in His Waverley Electric

THE use of Waverley Electrics in Washington official society has become so general that a sight of a Waverley carriage on Washington streets immediately suggests to a newspaper correspondent the presence of a general in the army, an admiral in the navy, a cabinet officer or foreign diplomat.

Among the users is Rear Admiral William Knickerbocker Van Reypen, U S N, retired, former Surgeon-General of the Navy and Chief of the Bureau of Medicine and Surgery from 1897 to 1902. Admiral Van Reypen obtained considerable prominence in the war with Spain by designing and fitting out the ambulance ship *Solace*, the first ambulance ship ever used in naval warfare. He has represented the Navy Department in many important international conventions and was a delegate to the Red Cross conference in St. Petersburg in May, 1902.

He retired from the navy after forty years' service, with the rank of senior rear admiral, January, 1902.

## A Retrospect

THE Electrical Show, with its magnificent display of every modern appliance used in the electrical industry to-day, contrasts vividly with the early efforts at electrical development. A retrospective view of a little more than a quarter of a century shows such remarkable progress that it is hard to believe so gigantic an industry could rise from so primitive a beginning.

# Welding of Metals by Electricity

**T**HE application of electrically generated heat to welding has made it possible to join metals which cannot be united in the ordinary way. It has also rendered the process exact, shortened the time and improved the quality of the work.

The underlying principle of electric welding is very simple. The heat is generated by connecting the joint in an electric circuit and increasing the density at the joint to such a value that the required temperature is obtained. The necessary pressure is applied at the same time.

This process is especially applicable to the butt welding of metals having



Electric Welder for Welding Tires



Electric Welder with Double Release Treadle  
and Cam Clamping Levers

practically the same cross-section at the weld. With electric current the heat can be applied at any point desired, and limiting it closely to this spot all of the energy is utilized just where it is needed. The temperature can be maintained at any point desired for any length of time, and any degree of heat can be maintained up to the melting point of the metal, and the heat can be increased or decreased at the will of the operator. No flux is required in making an ordinary electric weld. It is one of the properties of elec-



**Special Electric Welder for Heating the Ends of Spokes and Riveting Them. It is possible to make 10,000 operations in a day of ten hours**

tric current to follow the path of the least resistance. When the ends of two pieces of metal are brought together this is the point of greatest resistance, and the abutting ends will instantly begin to heat. The hotter the metal becomes the greater is its resistance to the flow of current. Consequently, as the edges of the abutting ends heat the current is forced into the adjacent cooler parts until there is a uniform heat throughout the entire mass, all being accomplished in a wholly automatic manner.

In making welds between the surfaces of large cross-sections alternating current is better than direct current be-

cause of the skin effect, which causes the current density to be greatest toward the outside, counteracting the effect of radiation, which gives a more even distribution of temperature.

In districts where Edison Service is direct current a motor generator can be installed. This set should consist of a direct-current motor connected to Edison Service and a single-phase alternating current generator with an electromotive force of 220 or 440 volts. Two wires are run from the generator direct to the welder, which is equipped with a transformer that further reduces the electromotive force to about five volts.

When two pieces of metal are to be welded, they are clamped between two heavy copper vise jaws on the welder shown in one of the illustrations, which are set from one-half to two inches apart, according to the size of the stock to be welded. The ends of the rods touch each other.

The current is turned on by means of a switch. In a few seconds the metal reaches a white heat and is in a partially molten state, when, by means of a powerful lever the ends of



**Small Electric Welder for Welding Wires and Small Rods up to One-half Inch Round. The regulator shown at the left is for reducing the current when welding smaller than the maximum size stock**



the metal are forced together while in this semi-fluid condition, thus making a homogeneous mass and a perfect weld. A projection or fin will be raised where the ends come together, and this may be ground off or removed by a drop hammer or press. When a weld is properly made in a bar of iron or steel, it is as strong at the welded point as at any other place. The heat is first developed in the in-

### An Electric Automobile Race-Track

THERE was a time when horse racing ranked as the sport of kings—when sleek thoroughbreds, thundering along at a forty-mile clip, furnished thrills and set a speed mark that could not be duplicated in any other racing sport. But that was before the day of the auto-



Exterior of the New Bronx Office of The New York Edison Company at 360 East 149th Street

terior of the metal, and the interior being the hottest the metal is welded at this point as perfectly as at the surface. When welding in a forge, the outer surface is heated first, and very often the inner part is not as perfectly joined together as the surface, the result being an imperfect weld.

Well lighted show windows bring your wares into the public eye.

mobile—before any one had thought of coupling high-power engines to an axle and hurling a vehicle through space as if it were a new kind of rocket.

Racing is pretty nearly as old as human nature. And motor racing, with its lightning flight of shadowy cars droning off the miles like monster bees, is easily the most exciting and spectacular form of speed contest.

There is hardly one of the hundreds of thousands of spectators viewing a big motor race who does not wonder how it feels to be skimming the earth at the whirlwind pace of the contestants. But such thrills, and even the pleasure of a jaunt in a touring car, are experiences that were not to be enjoyed by everybody until the amusement genius contrived the automobile race-track. This is a new

tific banking at the turns and long straightaway stretches for speeding. But there the resemblance ends.

The ordinary track provides only a smooth surface for racing. This track gives an unequaled speeding surface and is built so that the cars cannot deviate a hair's breadth from their respective courses. The track's construction is of entirely new design and permits of simultaneous operation of four



The Large and Well Appointed Interior of the New Bronx Office

form of recreation in which any one may be a Robertson, an Oldfield, or a Chevrolet. It offers at trifling expense all the excitement of motor-racing without any of its dangers.

For the installation of this amusement at Willow Grove Park, Philadelphia, a unique speedway, more than a mile in length, was constructed. To outward appearances the course resembles the approved type of race-track, being oval in shape, with scien-

standard, high-power automobiles, each carrying nine passengers. These cars are grouped at the start and whirl over the track at a speed varying from twenty-five to forty miles an hour. They are electrically operated and controlled, the track being equipped for this purpose.

Many electric refrigerating plants are now installed in hotels, colleges, hospitals and asylums.



### Metropolitan Realty Building Adopts Edison Service

**T**HE Metropolitan Realty Building, 216 William Street, will in the future be supplied with Edison Service.

A large private plant formerly operated was abandoned, as after careful investigation Central Station current was found to be the most desirable from every standpoint. The Metropolitan Building is occupied by various manufacturing companies who require a reliable

and economical power. Edison Service is always available, night and

day, and when overtime is necessary, a few machines, consuming power only when in use, can be operated without keeping a plant in operation. This in itself is a great advantage. There are many other advantages also.



Part of Abandoned Plant, Metropolitan Realty Building

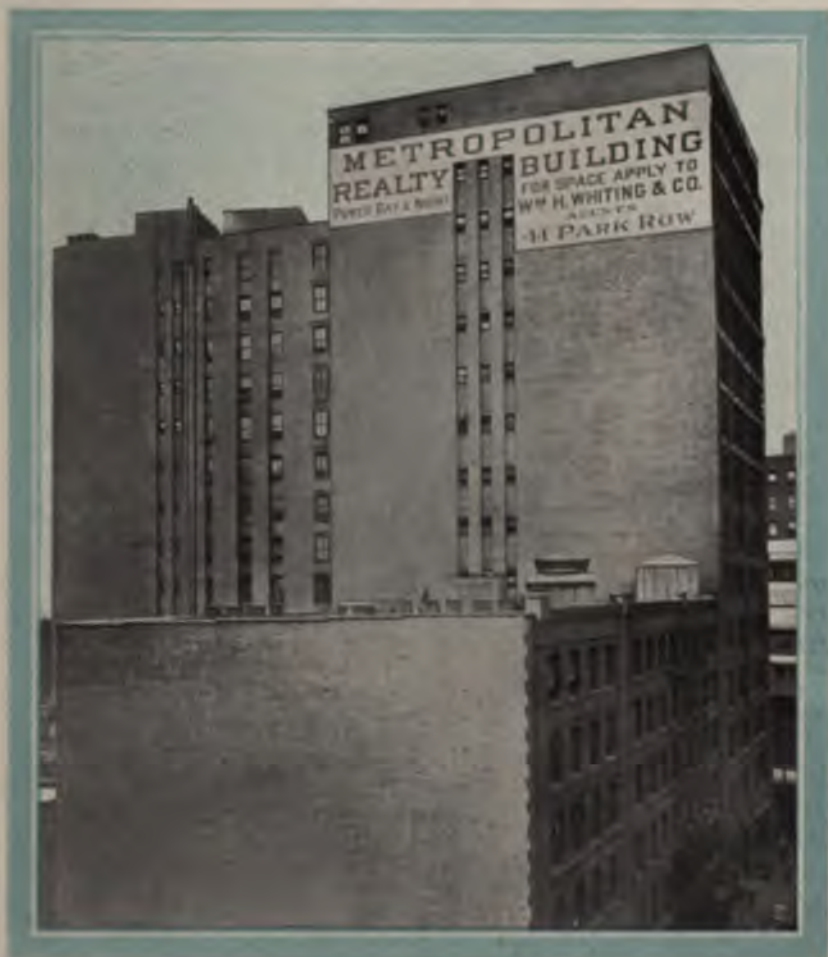
The valuable space formerly occupied by the plant can be utilized for business purposes.

High-pressure boilers are eliminated thus reducing danger from fire and accidents. The responsibility for continuity and efficiency of the electrical supply rests with the Central Station and the building owners are relieved of many troublesome details.



Abandoned High Pressure Boilers, Metropolitan Realty Building

## Edison Service the Successor of a Private Plant



The Metropolitan Realty Building, 216-220 William Street. The investigation which resulted in the abandonment of a private plant and the adopting of Edison Service was conducted by Mr F A Forgee, consulting engineer



### Eleven Billion Telephone Messages

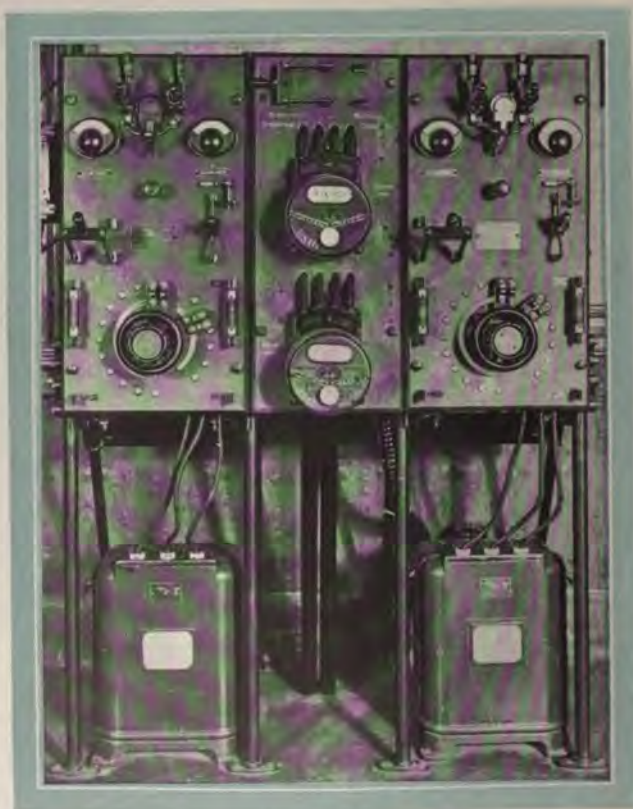
THERE were more than eleven billion messages, or "talks," over the telephone wires in the United States in 1907, an increase of 124.3 per cent over the approximately five billion similar conversations reported in 1902, according to estimates presented in the Census Bureau's report on the census of the physical equipment, service, and financial operations of the commercial, mutual, and independent rural telephone lines for 1907.

Other large increases are conspicuously apparent. In 1907 the total number of systems and lines was 22,971, as compared with 9,136 in 1902, an increase of 151.4 per cent. The miles of wire in 1907 were 12,999,369, an increase of 165.3 per cent over 4,900,451 in 1902. The salaried employees in 1907 numbered 25,298, as compared with 14,124 in 1902, the per cent of increase being 79.1.

The salaries during 1907 amounted to \$19,298,423, as against \$9,885,886 in 1902; a gain of 95.2 per cent.

The average number of wage-earners in the year 1907 was 118,871 as against 64,628 in 1902, an

increase of 83.9 per cent. The wages paid in 1907 amounted to \$48,980,704, as compared with \$26,369,735 in 1902; a gain of 85.7 per cent. The capital stock and funded debt outstanding in 1907 was \$814,616,004, while in 1902 it was \$348,031,058, an increase of 134.1 per cent. The income in 1907 was \$184,461,747, as compared with \$86,825,536 in 1902; a gain of 112.5 per cent. The operating expenses and fixed charges, except interest on funded debt, in 1907, amounted to \$128,486,196, as against \$61,652,823 in 1902; an increase of 108.4 per cent. The interest on the funded debt in 1907 amounted to \$12,-



General Electric Mercury Rectifier Charging Station in the Bronx Office of The New York Edison Company, 360 East 149th Street



316,109, as compared with \$3,511,948 in 1902, the per cent of increase being 250.7.

The telephone business of the country is divided into two great classes, one known as the Bell and the other as the Independent or non-Bell. Of the total number, 22,971, of systems and lines, including independent, farmer, or rural lines, represented in the census of 1907, there were 175, or 0.8 per cent belonging to the Bell system, and 22,796, or 99.2 per cent, to the non-Bell. The Bell system in 1907 operated 8,947,266 miles of wire, or 68.8 per cent of the total, as compared with 4,052,103, or 31.2 per cent, by the non-Bell. The Bell system in 1907 had 3,132,063 stations or telephones, which was 51.2 per cent of the total, and the non-Bell operated 2,986,515, or 48.8 per cent.—*Electrocraft*.

### A Unique Lighting Fixture

ONE of our friends who has just returned from Europe wrote us from Oberammergau:

"I was lodged in the house of Sebastian Bierling, uncle of Alfred Bierling, who takes the part of St John in the Passion Play. The modest dwelling was electrically lighted, and the narrow hall on the second floor was lighted by a porcelain shade fixture, hung about a foot under the low ceiling. Some thoroughly domesticated swallows had built a nest over the porcelain shade, and the birds had the aid of the warmth of the burning incandescent lamp to assist in hatching the tiny eggs. At the time our visitor was there the eggs had been hatched out, and the nest was occu-



A Swallow's Nest on an Electric Light Shade in a House in Oberammergau

piated by three little swallows, the parent birds flying back and forth to the nest from the street through an open window in the hall, and right over the heads of the occupants of the rooms. The fixture was so picturesque with its odd decoration that a photographer was called in to take the unique picture, and, notwithstanding the darkness of the hall and that no flashlight was available, a fairly clear impression was obtained, which I have pleasure in forwarding to you."

A copy was sent to us from Oberammergau, which we have endeavored to reproduce, although the birds sitting on the nest are only faintly visible in our reproduction.

A dainty lunch can be served with little trouble by using an electric chafing dish.

# Lifting Magnets

**D**URING the past ten years great strides have been made in the methods of handling iron ore, the cost of removing this material from the hold of a vessel and depositing it on the dock having been reduced

loading and unloading were performed by hand with few exceptions until 1905, when magnets for this class of work were brought out. Lifting magnets were manufactured for a number of years before this time, but their ap-

plication was restricted to the handling of plates and billets, there being no magnet on the market capable of handling pig iron, steel and iron scrap, castings, rails, and other miscellaneous magnetic matter.

The cost of handling the melting stock used by open hearth furnaces from cars to stock pile, or from stock pile to the charging boxes has been reduced from approximately eight cents a ton by hand methods to two cents a ton by the use of the lifting magnet in connection with suitable cranes. Lifting magnets are extensively used for loading charging boxes

for open hearth furnaces. Some of the stock is spilled on the tracks, but this is easily cleaned up with the magnet.

It is a great convenience and saves time for the crane operator to be able to transfer an empty charging box to a new location without the help of a ground man, or to be able to handle a heavy ingot or billet without waiting for chains or hooks to be attached. It



Thirty-six Iron Billets 2½"x2½"x20', with a total weight of 12,240 pounds, being lifted by a lifting magnet

from eighteen cents a ton by hand methods to six and a half cents a ton by modern unloading machinery.

The methods of handling iron and steel have not, however, kept pace with those of ore handling, and have remained almost unchanged until within the past few years.

Ten years ago cranes were used for transporting iron and steel, but the

is no unusual thing at some plants to unload one hundred thousand pounds of machine-cast pig in thirty minutes with one magnet.

Rail butts and billets are difficult to handle by hand, but are easily taken care of by the magnet. At one plant handling 4" x 4" x 40" billets from an indiscriminate pile, the average of 790 lifts was 1,710 pounds, and 675 tons were handled in thirteen hours and twenty minutes. At a puddling furnace 64,000 pounds of light bushing scrap were handled in twenty minutes.

It required four hours for a teamster and helper to load 1,800 pounds of steel turnings from a lathe-pit to a wagon. The turnings were long, heavy and tangled, from locomotive driving wheels. The magnet unloaded this wagon and put the turnings on the stock pile in three lifts. The time consumed was two and a half minutes.

A steel foundry that is equipped with a lifting magnet received an empty car in which to ship its castings. This car had previously been used for shipping pig iron. The magnet was lowered to within three inches of the car floor and swept over its surface. Six hundred pounds of dust and chips were picked up and loaded directly

into a charging box. With pig at \$20.00 a ton this makes \$6.00 worth of iron given to the steel foundry by someone. The use of a magnet would have prevented this loss by the original purchaser of the pig.

Some forms of light melting stock are particularly troublesome to handle by hand, and although the magnet does not handle a great weight at each lift, it gets a large quantity, and the saving, compared with hand moving, is about



Lifting Magnet Raising a Locomotive Cylinder Casting Weighing 4,100 Pounds

as much with this light material as with the heavy stock. The average lift of farmers' scrap, consisting of knotters and butters from threshing and binding machines and sections of cutter bars from mowers, is 929 pounds.

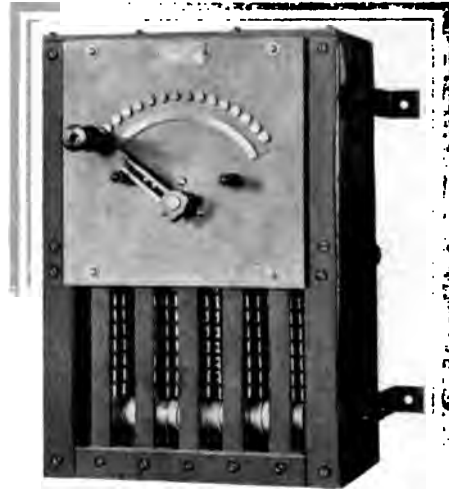
The magnets shown in the illustrations are made by the Electric Controller and Manufacturing Company, of Cleveland, Ohio.

# Apparatus for Charging Automobile Batteries

**I**N garages the duty of charging a motor vehicle may often devolve upon one unfamiliar with electrical apparatus and the operation of charging rheostats is generally made as simple as possible.

Battery rheostats are generally built for use on direct-current circuits ranging from 110 to 115 volts and are designed to charge the battery at the maximum rate until the cells are nearly fully charged, then at the minimum rate until the battery attains its maximum voltage. This method of charging is generally practiced.

Charging rheostats designed for use on 220 and 500 volt circuits are much more expensive than those intended for use on 110 to 115 volt circuits, owing to the greater amount of resistance required, and are not often used, since charging batteries at high voltages means that the greater part of the



**Cutler-Hammer Battery Charging Rheostat**

energy must be dissipated in the resistance. When a direct-current circuit of 125 volts or less is not available it is usually more economical in the long run to use a motor-generator set in

connection with the charging rheostat than to attempt to cut down the voltage by ohmic resistance; but 220-volt charging rheostats are sometimes used.

Battery charging rheostats meeting all the usual requirements of battery charging service, which



**A Bank of Cutler-Hammer Battery Charging Rheostats Arranged for Charging Several Vehicles at One Time and Controlled from One Point**

possess automatic protective features as well have been developed. These panels represent the most complete and satisfactory battery charging equipment of standard design obtainable.

The charging panel illustrated on this page is complete with resistance and angle iron frame designed to be mounted against a wall. The resistance is contained within the frame with the successive steps connected to the corresponding contact segments, leaving only the terminal connections to be made when rheostat is installed.

The panel itself, which carries all of the operating mechanism and protective devices, consists of three separate pieces of slate. On the face of the uppermost slate are mounted the terminals, or binding posts, and a Weston volt-ammeter. The middle slate carries a double-pole knife-switch and fuses (National Electrical Code standard) and below these the contact segments and operating lever, by means of which the charging current is regulated. On the slate at the bottom of the panel are mounted the automatic protective devices, which are:

(1) A low current cut-out, which automatically opens the circuit if the current drops to a predetermined minimum. This prevents the battery from discharging into the line should the line voltage drop below that of the battery.

(2) A maximum voltage cut-out. This automatically opens the circuit when the battery voltage reaches the point at which the cut-out is set to operate.

(3) A solenoid switch, the opening or closing of which "breaks" or "makes" the main line charging circuit.

(4) An overload circuit-breaker which automatically opens the circuit if the charging current rises to the point at which the breaker is set to operate. This insures the battery against being charged at an excessive rate.



Cutler-Hammer Battery Charging Panel  
Equipped with Safety Devices



## The Edison Monthly

The operation of this panel is as follows: After the battery and line connections have been made the operator first closes the knife-switch and then moves the operating lever forward to the third contact segment, at the same time raising the plunger on the low current cut-out (1), thus energizing the solenoid switch (3), which closes and permits the charging current to flow to the battery through the resistance.

Electricity for comfort.

### Hospital Now Uses Electric Ambulances

THE Presbyterian Hospital has three new electric automobiles at work for ambulance service to replace the combination horse and automobile service the hospital has been using. The hospital authorities have come to the conclusion that automobiles are more reliable and more economical than horse and wagon outfits.

The machines cost \$3,000 each.



Typical Electric Commercial Wagons Seen Daily on the Streets of New York  
The General Vehicle Company is the manufacturer

# The Care and Operation of Edison Storage Batteries

## PART II

THE normal discharge rate of the A-4 type cell is thirty amperes and of the A-6 type forty-five amperes.

The average discharge voltage of either type, working at its normal rate, is one and two-tenths volts per cell. A discharge is practically complete when an average of one volt per cell is reached. This applies to either type, discharging at its normal rate.

It is permissible to discharge a battery continuously at rates up to twenty-five per cent above normal; but this should be avoided if possible, on account of the loss of voltage and increase of heating caused thereby.

For occasional short intervals of time, as in climbing hills or starting on heavy roads, no harm will result if the rate be increased to three or four times the normal.

### INCIDENTAL CONSIDERATIONS

Lack of capacity in a battery may be due to grounds between cans or through the supporting structure; to low temperature, as on a cold winter day; to excessive temperature during charge; to depletion of potash in the electrolyte; or to carbonation of the potash.

Grounds are best avoided by following closely the directions as to "Cleaning," and by taking care that retaining cans do not get together by any chance and that nothing of a metallic nature gets between them.

Depletion of the electrolyte is brought about principally by improper filling of cells, for, when the solution is too high above the plates, it is liable to be forced out in bubbles by the escaping gas.

Carbonation comes from the use of water which has been exposed to the air and has absorbed carbon dioxide from it, or which has become carbonated in some other way.

Depletion of electrolyte can be detected by specific gravity readings, but the amount of carbonation can only be determined by a chemical analysis. Both of these troubles are remedied by a complete renewal of electrolyte, which should be done, anyway, every eight to ten months, as explained under "Electrolyte."

If it should be found, in taking a specific gravity reading, that the electrolyte in any cell is much weaker than the average, this cell should be examined for a possible leak. If a cell is found to be leaky, it should be renewed.

The *Edison Storage Battery* may be allowed to stand in a discharged condition any length of time without injury, and, in fact, it is much better that it should be discharged than charged when left to stand.

A battery can be put out of commission indefinitely if care is taken to see that the outside of the retaining cans are left clean and dry, and that the cells are in a discharged condition. It

should be stored in a dry place, and will require no attention other than an inspection once in two or three months to make sure the solution is kept at the proper height.

Do not put heavy weights on top of cells or stand on them, as permanent injury is liable to result.

### TEMPERATURE

The best results are obtained from a battery when the temperature is kept between seventy and ninety degrees Fahr. For this reason it is advisable to have the garage reasonably warm in winter and well ventilated in summer.

*The battery compartment should always be kept open while battery is charging.* All holes or openings in battery compartment should be sealed or closed tightly during the cold winter months, so that the cells will retain their heat while out on the road.

The temperature of a battery should never be allowed to go above 100 degrees Fahr during charge, or 115 degrees during discharge.

The lower the temperature is kept (within the prescribed limits) during charging, the longer will be the life of the battery.

In hot weather the temperature can be kept down during charge by the use of an ordinary desk fan blowing on the battery.

When the temperature of a battery falls below fifty degrees Fahrenheit during either charge or discharge, the output and efficiency will be temporarily impaired.

In filling use only pure distilled water.

Do not use aerated or carbonated water. Most drinking water is carbonated and sometimes contains injurious salts.

Water to be used for filling should not be left exposed to the air. It should be kept corked up in glass bottles or in carboys.

Proper height of the solution is one-half inch above the plates.

*Never allow the solution to get below the tops of the plates.*

The frequency of filling depends entirely upon the usage. In some cases batteries must be filled twice a week, in others once. As a matter of precaution we recommend that a battery in regular service be looked over twice a week.

Filling should be attended to before batteries are put on charge, for in charging the solution is raised to a false level.

Filling apertures should be kept closed excepting at such times as they are being used for filling purposes.

In filling it is recommended that the special filling apparatus supplied us be used.



# The Edison Monthly



November

1910

VOLUME III

NUMBER 6

## CONTENTS

	Page
Editorial - - - - -	154
The Gimbel Store - - - - -	156
Consumption of Coal in the United States - - -	159
The New Detroit Electric - - - - -	159
The Aeroplane and the Wireless - - - - -	160
Garage Charging Board - - - - -	161
Turn on the Light - - - - -	162
Convenient Attachments for Electric Appliances	163
Sterilizing with an Electric Flat Iron - - -	163
Lighting in the Days of Old - - - - -	164
A Kaleidoscopic Sign - - - - -	165
A General Utility Motor - - - - -	166
Heidelberg - - - - -	167
The Care and Operation of Storage Batteries -	168
Pittsburgh Motor Vehicle Company - - - - -	171
The New Edison Kinetophone - - - - -	171
New York Plant of the Cutler-Hammer Manufactur- ing Company - - - - -	172
Electric Advertising - - - - -	175
The Fourth Annual New York Electrical Show -	176

# Editorial

## *The Edison Monthly*

Published by

## *The New York Edison Company*

General Offices

55 Duane Street New York City

---

President  
ANTHONY N BRADY, 54 Wall Street  
Treasurer  
JOSEPH WILLIAMS, 55 Duane Street  
Secretary  
LEWIS B GAWTRY, 4 Irving Place

---

The Fourth Annual Electrical Show, held from the 10th to the 20th of October, has been of the greatest importance and interest to all concerned, either directly or indirectly, with electricity or electrical appliances. In this, the fourth year of its existence, it has become an institution for people interested in electricity. More than ever before, the visitors at this year's Show have been men and women coming with the definite purpose of investigating some sort of apparatus with a view to its use.

Aside from the business proposition of probable results, the genuine interest of the visitors in the devices and appliances shown was greatly appreciated. "Never before have we had a crowd that asked such intelligent questions," stated the manufacturer of a household appliance.

The same sentiment, variously expressed, was repeated on every hand. Exhibitors whose specialty would ap-

peal chiefly to central station men, commented on the presence of many out-of-town station men in the crowd; other devices intended for industrial use found in the visiting throngs manufacturers on the lookout for just such mechanism; makers of pleasure vehicles were amazed to discover the number of people who came to the Show for the purpose of investigating the subject of the electric automobile.

One of the striking examples of the cosmopolitan character of the crowd was the experience of the Kinetic Engineering Company, which was exhibiting its patent organ blower. "We entered the Show largely as an experiment, or an advertisement, as you chose to call it," was the statement made. "We had never entered our goods at an Electrical Show before, thinking our line entirely too much of a specialty, of interest only to church organists or musicians, whom we could not expect to find attending an electrical display. However, we decided to try the experiment, after sending announcements to a few people whom we thought might be interested. The results have been very encouraging, and we were surprised to find the number of our kind of people who came to the Show."

Although there was hardly a single exception to the report of "big business" or "fine prospects," the popular



attention at this Show centered around household devices and electric vehicles. When the Show had been open only a few days, the Duntley Manufacturing Company reported that one salesman alone had made \$1,000 worth of sales. By the close of the ten days, some of the firms exhibiting had fairly swamped their factories with orders. The Empire Vacuum Cleaning Company reports three months' work ahead; the Keller-Santo firm stated that never in their experience had so many substantial people called with a distinct view to purchasing. "We believe, from what we have seen here," said the general manager, "that the public is more interested in vacuum cleaners than ever before, and that there is tremendous business ahead for every reliable concern in this line."

Only a salesman, however, can appreciate the "hard luck" of the Rosenfield Manufacturing Company, which received so many orders that the factory had to call a halt. The very next day, after the factory had decided that no more orders could be taken for the present, the agent was obliged to refuse a cash offer for one hundred cleaners for South American use.

Equally successful in every way were the seven electric vehicle concerns that entered the Show. Aside from the sales made at the Garden and contracts now pending as a result of the exhibition, there were other

signs which foretell a change in the direction of public approval from the gasoline car to the electric.

"We consider it extremely significant," said Colonel Lansden, of the Lansden Company, "that prospective purchasers no longer immediately inquire the price of electric trucks, or seem to object when told that the initial outlay is somewhat larger than for horse-power or gasoline. They seem to agree, without any argument on our part, that an electric truck is an investment. The points on which purchasers want information now are the amount of work which an electric truck can do, compared with other motor powers and the decrease in the cost of maintenance which it is possible to effect."

Successful automobile exhibits were, however, by no means confined to the delivery wagon and heavy truck manufacturers. The Studebaker Company reports negotiation as equally divided between the business and pleasure vehicles. The Detroit Electric record an average of two sales a day. The Baker Company, among its sales and "prospects" reports that a woman totally unknown to the company's representatives questioned an agent on Monday afternoon concerning the runabouts on display, and returned Wednesday and purchased one. No less than three electric broughams were sold directly from the Babcock exhibit, in addition to numerous contracts now pending.

# The Gimbel Store

**T**HIS great department store, which is probably the largest in the world, was opened to the public on Thursday, September 29th. As a preliminary befitting this occasion the Messrs Gimbel tendered a recep-

quested the assembled guests to stand in recognition of the great achievements of Mr Thomas A Edison, who was one of the guests of honor.

The luncheon was followed by a general inspection of the building, which had been thrown open to the view of the guests from top to bottom.

The Gimbel building faces on Broadway at the intersection of Sixth Avenue, extending from Thirty-second to Thirty-third Streets. It has a frontage of 200 feet on Broadway and 400 feet on each of the side streets, occupying more than three-quarters



*Photographs for this Article by Courtesy of the Electrical World*

**Tungsten Lighting in the Art Gallery**

tion and luncheon to the retail merchants of the city and prominent men in public life on the day preceding the opening, which was a most enjoyable affair.

Mr Jacob Gimbel delivered the principal address, outlining the policies of the company, and giving some details of the immense establishment of which he is a member. At the conclusion of the ceremonies the chairman, Mr William H McElroy, re-

ters of the block between Sixth and Seventh Avenues, facing entrance to new Pennsylvania Railroad Station.

There are ten stories above and three stories below the surface of the ground. Of these, nine are for the selling departments, one for the offices, one for the stock rooms, one for the dining room, concert hall and fur vault, and the last, the sub-basement, contains the heating plant and electrical apparatus.

Some idea may be acquired of the vastness of this building from the following statistics furnished by the architects who planned it:

It has 120 flights of stairs which, made into one continuous flight, would extend upward 1,680 feet, or more than twice the height of the highest structure in the world.

Over one million square feet of plate glass has been used on the outside of the building alone. There are 2,406 steel columns supporting the floors having a combined height of over six miles.

To provide for the sub-basement and basement mezzanine it required the excavation of 2,970,000 cubic feet of rock.

The heating system is one of the most extensive ever installed in New York, and required 1,320,000 feet, or twenty-five miles, of circulation pipe to properly distribute the heat.

The fittings and public conveniences in the Gimbel store are the most elaborate ever installed in any store. Every effort has been made to promote the comfort and welfare of both customers and employees. A large and very completely furnished tea room occupies the choice position on the eighth floor, receiving an abun-

dance of light and air from three sides. Among other features of the building are a concert hall containing a spacious stage, a waiting and writing room, and a hospital, the latter being in charge of a competent resident physician and nurse.

For the exclusive use of the employees are provided a lecture room and a study on the tenth floor. Adjoining these is a library and reading



Arrangement of Lamps in Show Windows

room which communicates with the employees' restaurant.

The electrical equipment of the building required approximately 10,000 electrical horse-power, and is one of the largest single installations in existence. Illumination is supplied by more than 24,000 incandescent lamps, of which 5,000 are tungsten. These lamps have an aggregate of 384,640 candle-power. To connect them it necessitated the use of 540,000 feet, or

## The Edison Monthly

about 100 miles, of copper wire. All show cases and most of the wall cases are lighted by incandescent lamps, for which purpose more than eleven and one-half miles of wire were needed.

The electric power equipment is very elaborate, and operates innumerable devices. All of the elevators, of which there are about sixty, are motor-driven, and the package conveyors connecting every floor with the basement are also motor-driven.

For supplying the large connected and lighting power load a sub-station has been installed in the basement. The equipment consists of seven 1,000-kilowatt rotary converters, with the necessary step-down transformers and high-tension switches.

The alternating current supply is furnished by the Waterside Stations of The New York Edison Company at 6,600 volts, three-phase, twenty-five-

cycle. This is transformed by the rotary converters to 240 volts direct current.

There is a direct-current switch-board in the sub-station, provided with heavy tie connections to the distributing board for the building service.

The delivery system is of great importance, as deliveries will be made over a territory comprising Greater New York, Northern New Jersey, Long Island, the residential districts adjacent to the Hudson River and Long Island Sound. Electric vehicles will be used exclusively for this purpose.

The central garage is located on Twenty-fourth Street west of Tenth Avenue, with sub-stations in the Bronx and in Newark, N. J. Others are later on to be established on Long Island and possibly in New Rochelle.



Corner of Main Floor



View of the Sixth Floor

At the opening of the store, the delivery service immediately available consisted of sixty-six Studebaker electric machines, five American Locomotive trucks and five auto-car package wagons. This equipment will be increased about holiday time by twelve additional electric machines. It is expected that early in the coming year approximately 150 vehicles will be needed concurrently with the development of the firm's business.

## Consumption of Coal in the United States

**T**HE rapid increase in the consumption of coal per capita in the United States can be attributed in a large measure to the greatly increased use of electricity for light, heat and power. In 1880 it was 1.4 tons per capita; in 1892, 2.3 tons; and in 1907 it was 5.4 tons.

## The New Detroit Electric

**C**HIEF among the changes in the Detroit Electric for the coming season are the direct shaft drive transmission without reduction from chain to gears; the larger, roomier four-passenger brougham, nine inches longer inside than the standard model of last season; a snappy roadster model of low clearance and long wheel base; and the option of pneumatic or cushion tires.

In the shaft drive power is transmitted directly through the armature shaft and motor shaft to a beveled gear in the rear axle. By eliminating an extra reduction through a chain or a set of gear bearings and countershaft, several parts have been dispensed with, giving lighter weight and easier accessibility. Practically instantaneous transmission has been effected without loss of efficiency.



The beveled gear construction provides a means of adjustment so simple and positive that it may be made by the owner without assistance. Adjustments can be made within one one-thousandth of an inch with a cotter pin and screw by simply removing a cap at the rear axle that forms part of the differential housing. The importance of this improvement will be easily recognized when it is understood that perfect adjustment is necessary to noiseless transmission. The motor and gears are noiseless.

A motor has been specially designed for heavy pulling characteristics and low current consumption. No moving part is exposed, yet the assembly is such that every unit of mechanism may be separately removed without disturbing any of the other parts.

The inside measurement of the larger four-passenger brougham is fifty-four inches from the extreme rear to the front seat. The rear seat is 46 inches wide by 21 inches deep; the front seat is 41 inches wide by 18 inches deep. This car has an 84-inch wheel base and the corner panels and hoods are made of aluminum to decrease the weight and prevent checking.

Much favorable comment has been created by the Model P roadster type. Built on rakish, racy lines, with a very low center of gravity and an 86-inch wheel base, it possesses extremely smooth riding qualities.

Two other models are the Model N, a larger four-passenger victoria, and the FL, a victoria type with long Edison hobb in front. Both have long wheel bases and are of light construction. Model D, the brougham type of the last four years, will be equipped with both shaft and chain drive.

## The Aeroplane and the Wireless

**N**UMEROUS successful experiments have been recently conducted in the transmission of wireless messages to and from aeroplanes in action.

The experiments have been conducted under the supervision of army officers and have created considerable interest.

The possibilities of the aeroplane in warfare when equipped with wireless apparatus would seem to be of great importance.



Some of the Studebaker Electric Vehicles Used by Messrs Gimbel Brothers for Delivery Purposes

# Garage Charging Board

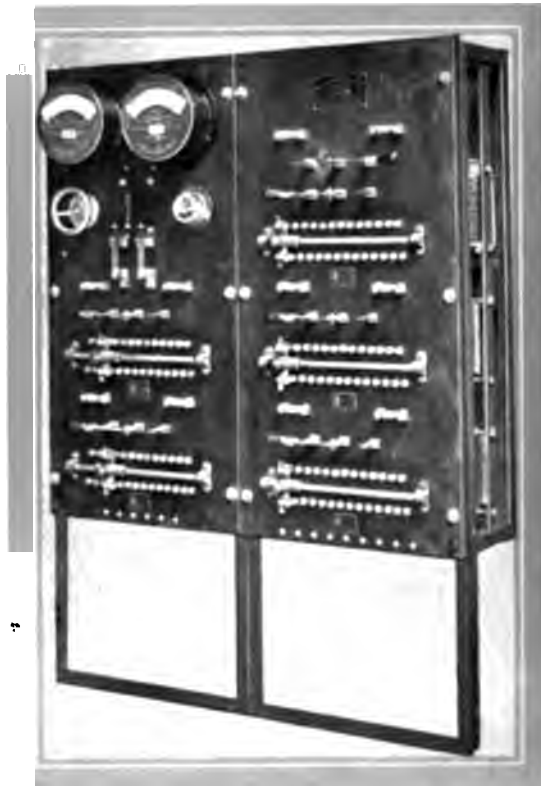
**T**HE large battery charging equipment illustrated on this page is designed for use in garages making a specialty of charging electric vehicles. This type of panel can also be arranged for discharging the batteries, a necessary operation when new batteries are put into commission, or when cells are undergoing treatment for sulphating. Any number of these panels can be assembled side by side, forming a compact and convenient switchboard and presenting a much more pleasing appearance than is afforded by a number of separate rheostats scattered about the garage.

In the equipment illustrated each double row of contact buttons constitutes a separate rheostat, the charging rate being regulated by moving a slide back and forth on the rod mounted between the rows of buttons, thus cutting resistance in and out of the battery circuit.

The resistance consists of cast metal grids mounted on the back of the panel. These are reinforced with a supporting strip which prevents vibration and are specially treated to insure them against the corroding effects of moisture or acid vapors.

With this charging panel, any number of cells from ten to forty-four

can be charged. This point is of great importance in public garages, where vehicles that come to be charged differ widely in battery equipments. The



Cutler-Hammer Charging Board for Garage Duty

use of one of these panels permits instant adjustment to the needs of each vehicle and also permits of a single tray of battery being given a special charge in order to compensate for losses due to extra duty—such, for instance, as might be caused by one of the trays having been drawn upon for the vehicle's light.

## The Edison Monthly

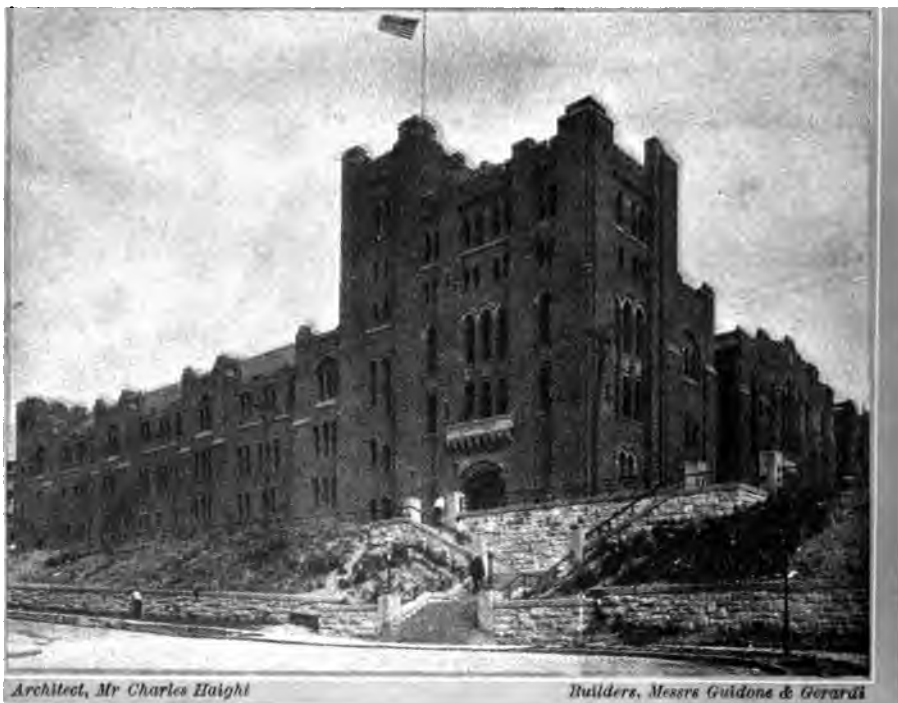
### Turn On the Light

**O**NE trenchant reason for the effectiveness of electric advertising is the fact that light possesses great advertising value.

The term "electric advertising" may be taken to include all forms of publicity in which light is a predominant factor, furnishing illumination for at-

ence of electric light companies and of electric advertising experts that after the overhanging electric sign is in place the merchant or advertiser is then ready to use electric publicity in other forms.

The electric sign prompts travel. Travel brings with it the necessity for other forms of display advertising;



*Architect, Mr Charles Haight*

*Builders, Messrs Guildone & Gerard*

Second Battery Armory, 166th Street and Franklin Avenue, Bronx  
Light and power furnished by Edison Service

tracting attention or for the display of goods or an announcement. It begins with the electric sign over the door and takes in the decorative outlining, the illuminated window display and interior lighting.

The electric sign as the father of electric advertising, is the forerunner in this field. It has been the experi-

rather, brings the opportunity to make display advertising more effective. Then the merchant feels the necessity of dressing his windows artistically and lighting them well. This is all electric advertising, and comes within the scope of the advertising expert's work.—

*Extract from Chained Lightning.*

## Convenient Attachments for Electrical Appliances

**W**HEN building or remodeling apartment houses and dwellings too much attention cannot be paid to proper outlets for convenient attachment of practical devices. These outlets can be located in the baseboard or chair rail or flush with the wall, and form no obstruction whatever. It is only necessary to place the apparatus to be used

## Sterilizing with an Electric Flatiron

**A**FTER an exhaustive test, one of the best-known medical authorities in Europe declared publicly that the simple ironing of garments with the electric flatiron is one of the best ways to sterilize them.

It has long been our custom to boil everything which we want sterilized. Clothing contaminated by contact with contagious diseases was boiled to



A Splendid Example of Tungsten Lighting in a Historic Edifice. The Old John Street Church  
John and William Streets

wherever convenience dictates, and insert an attaching plug in the receptacle. These outlets will also be found a great convenience for attaching portable lamps for table or desk use for reading lamps in the bedroom and many other purposes.

Current for every electrical application is always "At Your Service."

cleanse it of disease germs. Everything used by surgeons at operations was thoroughly boiled and even their clothing was boiled and steamed. That the electric iron, which retains a high degree of heat indefinitely, is just as good a disinfectant for light fabrics has been thoroughly demonstrated.

During the test every variety of fabric was subjected to the heat. Clothes

of all kinds were daubed with typhoid and diphtheria germs, used as dust cloths, contaminated by actual contact with children suffering from measles and whooping cough and laden with deadly germs in every way. Each and every time the simple ironing of the cloth killed every form of bacilli. The hot iron sterilized sheets and pillow cases, underclothing, hand-

### Lighting in the Days of Old

LOVE of light is the greatest heritage of the human soul. And since primeval man sat in the glow of the snapping camp fire, every age has sought to improve on the methods of dispelling darkness between sundown and sunrise.

As a rule, writers of history confine themselves to the most important



An Example of Excellent Show Window Lighting in the Attractive Store of Messrs Pinto Brothers, 2278 Third Avenue. The engraving was made from an untouched photograph

kerchiefs, lawns and linens by a simple application. With the heaviest clothing it was necessary to iron the garments on both sides to rid them completely of germ life.—*Exchange*.

Wherever perishables are sold—in the flower shop, the meat and fish market, the grocery, the cafe, the confectionary store—automatic refrigeration is advantageous.

details and events, and readers are too prone to associate the people of the past with the conveniences of the present.

Few realize that previous to the invention of the tallow dip, by King Alfred, the interior of the Saxon castles and banquet halls in England were lighted with torches held in iron sockets on the wall. Of course they smoked and flickered, and it is written



that the wind blew the sparks all over the room. In ancient Rome and Greece the torch was the standard method of illuminating buildings and streets, although lamps, burning fat from a rush wick, were extensively used.

Every effort in the laboratories of the electrical industry is bent toward economy. The latest development in electric lighting is but another long step in the right direction.—

*Utica Tribune.*



Kaleidoscopic Sign at the Corner of Manhattan Avenue and 109th Street

## A Kaleidoscope Sign

**A** NEW style of sign embodying several novel features has been in successful operation for some time at the corner of Manhattan Avenue and 109th Street. The sign consists essentially of a kaleidoscope center display, fourteen feet in diameter, with a painted bulletin sixteen feet by eight feet on each side of it.

The kaleidoscope contains eighty-four two-candle-power carbon filament lamps and a like number of four-candle-power lamps of the same style. These lamps are controlled by thermo-operated flashers, which produce automatically more than 16,000 different combinations of lighting. The colors are continually changing, giving the effect of a large kaleidoscope.

The bulletins are each lighted by nine forty-watt tungsten lamps. On two sides of each bulletin there is a changeable yellow border of Grecian pattern, each containing sixty four-candle-power five-watt tungsten lamps

wired twelve in series. These lamps are also controlled by thermo-flashers, which produce thirty-one different combinations. No motor, clockwork or similar mechanism is used, the entire display being placed in operation by the closing of the main switch.

From actual meter readings covering a period of fifteen days the cost of operating the sign averaged eighteen cents an hour, which is very reasonable when its advertising advantages are taken into consideration.

The Empire Electric Sign Company manufacture the kaleidoscope sign and control the patent covering the thermo control.

The great beauty about electric advertising is the fact that it adapts itself so admirably to the financial condition of the merchant. The pioneer merchant must necessarily first utilize that form of it which brings him the greatest returns and prominence for each dollar expended.

## A General Utility Motor

THE general utility motor now being placed upon the market by the Westinghouse Electric and Manufacturing Company marks the latest advance in the application of electric motors to household convenience. By means of its special attachments the motor can be adapted to a variety of uses about the house. The new motor commends itself heartily to the favor of central station companies, as it provides another wedge for the introduction of electricity into the home. Furthermore it is essentially a day load. The motor takes from forty to 120 watts for its operation.

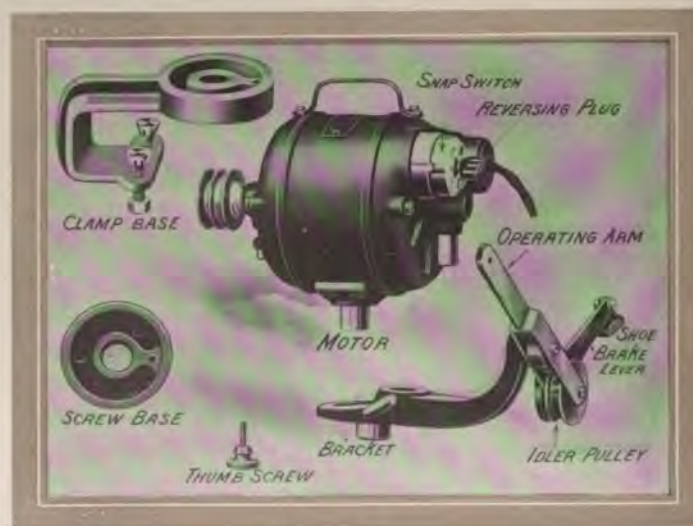
The general utility motor can be readily arranged to operate the following devices: Family sewing machine,



Motor with Blower Attached

buffing, polishing and grinding wheels, ventilating blower, jeweler's lathe, light machinery, small lathes, sign flasher, moving window display, mechanical toys, etc. The motor is sold

complete with one or more attachments. Purchasers can obtain further attachments as desired. A different attachment is not necessary for every one of the uses mentioned above, as some of the attachments make the motor available for several purposes without change. The



Motor with Accessories

general utility ventilating outfit is one of the features of the new apparatus. The small blower will supply fresh air to the kitchen, increase the draft

enamel to harmonize with the other house decorations. The applications of the attachments are positive; it is impossible to put them on wrong.



Motor with Buffer Wheel

of a furnace, remove foul air from sick rooms and readily adapt itself to any small ventilating work. By fitting the blower openings with suitable pipe, air currents can be directed wherever desired. The general utility motors are made for operation on 115 and 230 volt direct-current circuits and on 110 and 220 volt alternating circuits of 60 and 133 cycles.

The direct-current motors are shunt wound, while the alternating current motors are of the induction type, single phase. The motors run at a speed of 1,700 rpm. The motor is light and can be easily carried from place to place by means of a handle in the top of the frame. It is artistically finished in black

## Heidelberg

THE Heidelberg electric tower, located at Broadway and Forty-second Street and Seventh Avenue, is rapidly nearing completion. The tower will be 225 feet in height, and will be brilliantly illuminated with 35,000 electric lights. From the seventh floor upwards it will be devoted exclusively to electric signs. Each sign will be individual in itself, and will operate constantly.

The electric signs displayed upon the tower will be visible as far south as the Statue of Liberty, and from the North River.



Polishing Silver

# The Care and Operation of Edison Storage Batteries

## PART III

THE following are the necessary instructions for operation of the batteries: Fill the tank with plain distilled water.

Hang the tank in any convenient

far as it will go, taking care to see that the metal sleeve rests firmly on rim of filler opening, thereby insuring contact.

Press down on wire lever on top of



Method of Removing Batteries from Electric Vehicles by Means of a Hydraulic Lift. Garage of The New York Edison Company, Forty-first Street and First Avenue

place, about five feet above the cells to be filled.

Connect the rubber tube to the valve at bottom of tank.

Test filler before using by making connection with a piece of metal or a wire between the metal sleeve and the steel tube. If bell rings when this is done the filler is O K.

Insert filler in opening of cell as

filler. This opens the valve.

When bell rings the solution has reached the proper height.

Release valve and remove filler.

If the bell does not ring when a cell is properly filled it is an indication of a weak potash solution, or that solution is so low in cells that the fresh water added has not had time to become thoroughly mixed; or it may be



that the bell is out of adjustment, or the dry cells worn out. Don't use storage battery being filled to furnish current in place of dry cells, as short-circuit will result. Don't leave distilled water in filler tank when not in use.

## CLEANING

*The outside of the retaining cans should be kept clean and dry.*

If dirt is allowed to accumulate between the cells it is liable to become moist with water and potash and an

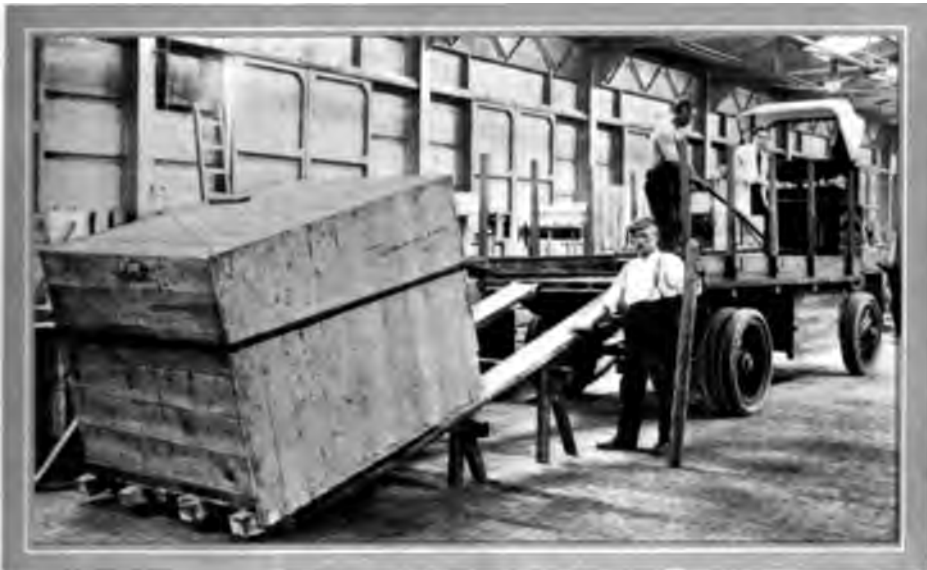
should be cleaned and dried thoroughly before reassembling the cells.

The block insulators or rubber aprons on which the cells rest should always be cleaned and coated with vaseline before reassembling.

Vaseline will not adhere to the retaining can if the can is moist.

## ELECTROLYTE

The Electrolyte in an *Edison Storage Battery* is a twenty-one per cent solution of potash (KOH), contain-



Electric Truck Equipped with Motor driven Winch for Loading Heavy Packing Cases  
One of several used by Messrs Manning, Maxwell & Moore

electrolytic action will result, which in time may corrode the retaining cans.

If the retaining cans become corroded or rusted, they should be coated on the sides and bottoms with vaseline. It is not advisable to vaseline tops of cells.

For a thorough cleaning, cells should be taken out of the trays, washed off and dried. The trays

ing a small amount of lithium. Both of these ingredients are alkaline.

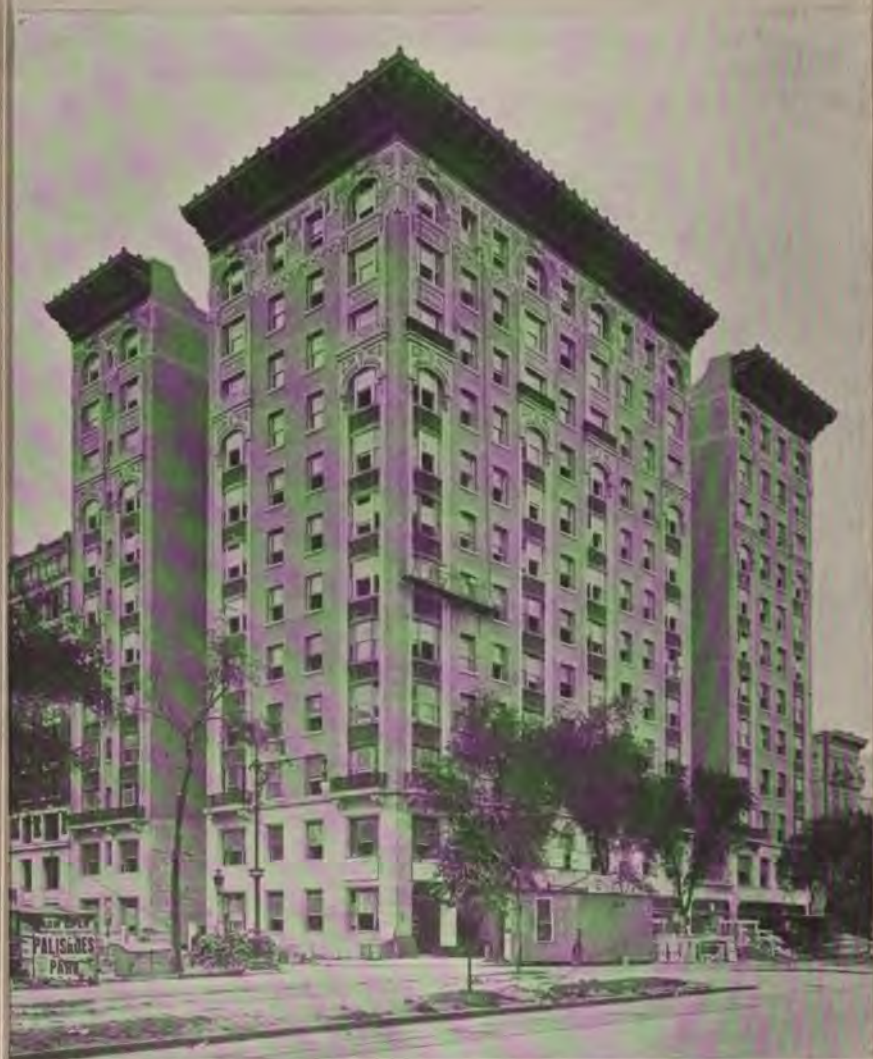
*Never under any condition put acid in the cells.*

The normal specific gravity of a twenty-one per cent solution of potash is 1.200.

The efficiency and capacity of a cell is not affected to any great extent until the specific gravity falls below



# Edison Service in Large Apartment Buildings



*Architects: Messrs George & Edward Blum*

New Apartment Building at Broadway and 113th Street. Edison Service is used exclusively for 3,500 incandescent lamps and 100 horse-power in motors

1.100. If the specific gravity is allowed to fall below 1.100, a temporary effect will be noticed in output.

The specific gravity does not change during charge or discharge.

If specific gravity readings are taken, they should be made at the end of a charge, by which time the distilled water used in filling will have had ample time to mix thoroughly.

The solution in an *Edison Storage Battery* in daily operation should be changed every eight or ten months—the old solution emptied out and new solution put in. After pouring out the old solution fill immediately with the new, being careful not to allow the cell to stand empty for more than a few minutes.

In cases where the specific gravity falls below 1.100, it is advisable to renew the whole electrolyte rather than add potash solution, as by adding potash the solution is liable to be made too strong, with the possibility that permanent injury will result.

It requires about 1,000 cubic centimeters, or 2.64 pounds to refill an A-4 cell, and 1,500 cubic centimeters or 3.96 pounds to refill an A-6 cell.

The following table shows the voltage necessary to charge various numbers of cells:

Cells	require	line	voltage	of	Volts
20	..	..	..	..	37.0
24	..	..	..	..	44.4
28	..	..	..	..	51.8
32	..	..	..	..	59.2
36	..	..	..	..	66.6
40	..	..	..	..	74.0
44	..	..	..	..	81.4
48	..	..	..	..	88.8
52	..	..	..	..	96.2
56	..	..	..	..	103.6
60	..	..	..	..	111.0
64	..	..	..	..	118.4
68	..	..	..	..	125.8
72	..	..	..	..	133.2
76	..	..	..	..	140.6
80	..	..	..	..	148.0

To maintain the normal rate throughout the charge, the line voltage must average at least 1.85 times the number of cells in series. For example, to charge sixty cells in series it would be necessary to have a line voltage of sixty times 1.85 volts, or 111 volts.

If the line voltage be one or two per cent lower than that specified in the table, it will not interfere to any great extent with the charge, the only difference it will make being at the end of the charge, at which time it will be impossible to maintain the normal rate. A battery of sixty cells can be charged in a very satisfactory manner on the universal direct-current line of 110 volts.

## Pittsburgh Motor Vehicle Company

THE above company has recently removed its factory and main office from Pittsburgh to New York City. It is now located in a new and completely equipped concrete plant at Concord Avenue and East 143d Street, where a full line of electric commercial vehicles will be manufactured.

## The New Edison Kinetophone

M R THOMAS A EDISON has recently perfected his kinetophone, which is a combination of the kinetoscope and the phonograph. By its use the moving picture is accompanied by music or conversation. In this manner operas, dramas and speeches can be reproduced in a decidedly realistic manner.

## New York Plant of the Cutler Hammer Mfg Co

TO better care for its eastern business the Cutler-Hammer Mfg Co, whose plant at Milwaukee is the largest in the world devoted exclusively to the manufacture of electric controlling devices, has found it necessary to move its New York plant to larger quarters, and has therefore constructed a new factory building in the Borough of the Bronx.

The building in design and construction is the work of the Worden-Allen Co of Milwaukee. It faces Southern Boulevard, 144th Street and Timpson Place and is five stories high, of steel and brick skeleton construction. It contains about 100,000 square feet of floor space and is in every respect most complete. Elevators and stairways are enclosed in brick shafts



The Extensive New York Factory of the Cutler-Hammer Manufacturing Company which was Recently Opened for Business. The building contains one of the best systems of motor drive in the city. Edison Service is used throughout for light and power



Electric Elevator

provided at all openings with fire doors, and the entire building is equipped with an automatic sprinkler system.

There are two 25,000-gallon gravity tanks on the roof and a 50,000-gallon steel tank buried in the rear of the building, all of which are used in connection with the sprinkler system. The motor-driven fire pump shown is supplied from the storage tank and also from the city mains. The pump is De Laval make, two-stage centrifugal type, delivering 1,000 gallons of water per minute at 100 pounds pressure. It is driven by a Westinghouse 200-volt, two-phase, sixty-cycle slip ring induction motor.

The electric current used for both

lighting and power purposes is furnished by The New York Edison Company. Cooper-Hewitt mercury vapor lamps are used throughout the factory, while in the offices Nernst lamps are employed for illumination. Alternating current is used for all lighting circuits. The main switchboard is made up of two direct-current feeder panels (at the left), the direct-current generator panel, Cutler-Hammer automatic alternating-

current motor starting panel (for motor driving the direct-current generator of motor-generator set), an alternating-current lighting panel and the Cutler-Hammer fire pump control panel. Two additional panels for another motor generator set for which provision has been made at the left will be installed later. These panels will be similar to the panels three and four.



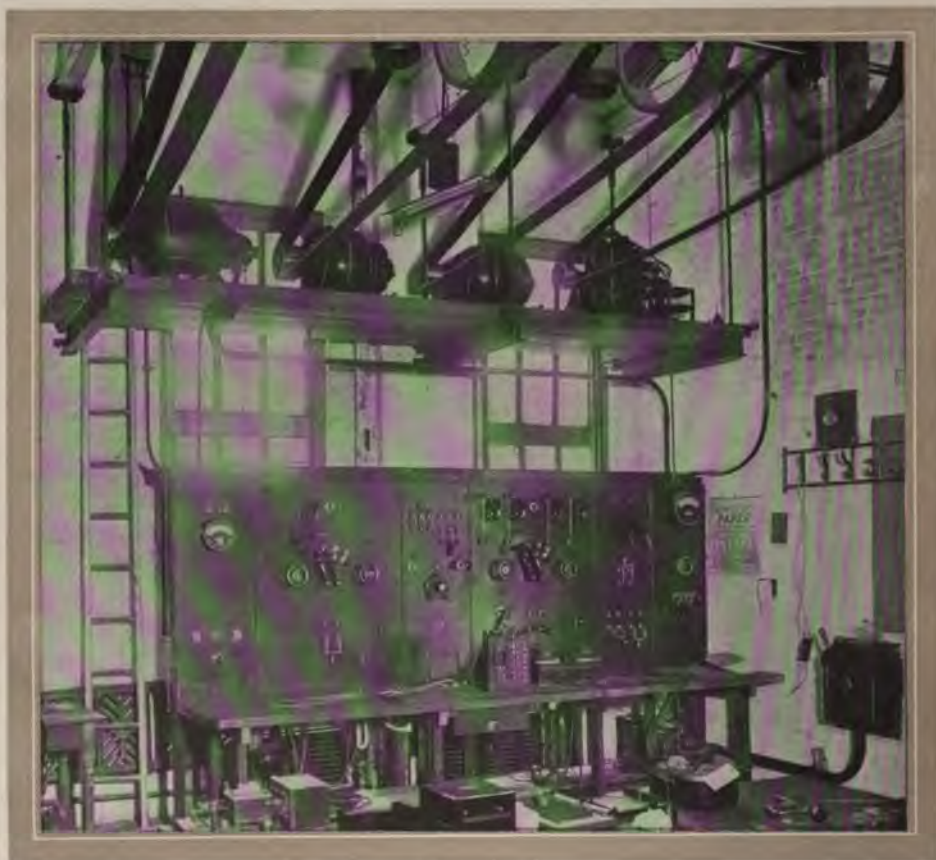
Motor Generator Set



## The Edison Monthly

The motor-generator set consists of a sixty-horse-power two-phase Crocker-Wheeler squirrel cage motor direct connected to a forty-kilowatt, 220-volt direct-current generator. The direct current is supplied to the motors operating the machine tools in the factory, Cutler-Hammer controllers

ment of speed control and insuring against injury or accident to passengers and motor. The car switch controls only the magnetizing currents, which are very small, but the operator is nevertheless enabled to control all the functions—starting, accelerating to maximum speed, slowing



Corner in Testing Department

being used for the control of all the motors.

The twenty-five-horse-power motor used for elevator service is equipped with a Cutler-Hammer elevator controller. This controller is of the full magnet type, affording every refine-

ment of speed control and insuring against injury or accident to passengers and motor. The car switch controls only the magnetizing currents, which are very small, but the operator is nevertheless enabled to control all the functions—starting, accelerating to maximum speed, slowing



are driven by a motor which provides a flexible means of obtaining the different conditions desired for testing purposes. The Carter-Hammer "Carpenter" type controller mounted on the wall to the right of the switchboard provides the means for regulating the speed of the motor.



De Laval Pump Driven by a Westinghouse Motor

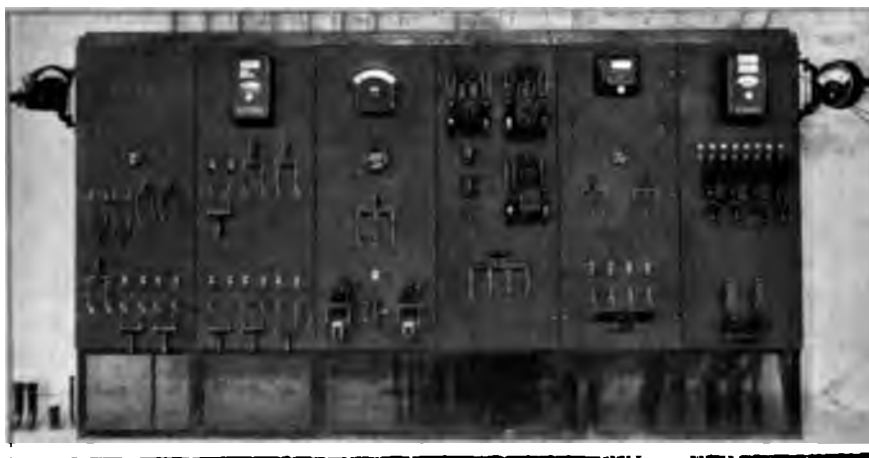
## Electric Advertising

**T**HE forcible form of display is the electric sign which can be read from a distance.

A few overhanging signs in a locality induce more travel, more travel induces the merchant to use additional forms of display advertising. You never saw a merchant willingly discontinue any form of electric advertising after he had used it for a while

and experienced its good results. Electric advertising acts directly upon sales and stimulates the cash register.

When promoters of expositions want to attract the attention of the world, they do not rely upon artistic buildings and "scenically" arranged parks. They turn on the highest electric light and lots of it. One cities are commercial centers. They must necessarily drift commercial and business sentiment and assurance



The Main Switchboard

## The Fourth Annual New York Electrical Show

THE Electrical Show, which was held in Madison Square Garden October 10th to 20th, marked a new era in exhibitions of this kind. In the number and comprehensiveness

Particular attention was paid this year to the domestic applications of electricity, and to the exhibition of electric automobiles.

That lighting devices and apparatus



Madison Square Garden During the Electrical Show—Twenty-sixth Street Side

of exhibits, beauty of decorations and artistic lighting effects it has eclipsed all previous efforts.

The candle-power of the lighting reached more than half a million, exclusive of exhibits, and produced one of the most beautiful spectacles ever before seen in the Garden.

of all kinds received due attention from the Show visitors is evidenced by the following letter from Fox Brothers, a firm manufacturing railway, machine-shop and mining supplies, but whose exhibit this year was confined to the new Fox-Multax lamp. "We deem it not out of place to join

in the universal expression of satisfaction that has been the result of the efforts of all concerned in the development of the present Show. It has really, in every sense, been co-operative and we believe that every person is more than satisfied with the results. The Show has been made a yearly necessity and a recognized fixture in

the Show was the record of the "Thor" electric washing machine. Of these, three went to Italy, two to Panama, one to the West Indies, and one was destined for distant China. The heathen Chinese laundryman will now meet a competitor on his native heath.

The foreign sales of the Hughes



Twenty-seventh Street Side of the Garden During the Electrical Show

exhibiting the developments of the electrical world."

Firms exhibiting household devices, other than suction cleaners, also partook of the general prosperity, interest in some of these appliances being by no means confined to this country. Ten sales daily for the ten days of

electric range are equally noteworthy. The first sale at the Show was made to a visiting English M. P., and this was followed by orders for central station companies at Melbourne, England, Quebec, Canada, Belize, British Honduras and the City of Mexico. Purchases were also made by export-



## The Edison Monthly

ing firms for distribution in Germany and Scandinavia.

The following notes on exhibits will give the reader some idea of the extent and variety of the apparatus shown:

*Anderson Carriage Company*—Detroit Electrics for pleasure and commercial purposes were exhibited. Representatives explained the salient features of these machines

*American Metal Hose Company*—A large assortment of flexible metal conduits and piping for electrical and mechanical purposes was shown

*American Z Lamp Company*—Improved high-efficiency incandescent lamps in many forms constituted this exhibit

*Babcock Electric Carriage Company*—The Babcock exhibit consisted of a Model 6 Victoria, a Model 14-4 passenger coupe and a Model 12 roadster. These were all 1911 models and embraced every refinement and improvement which will be incorporated in next year's product

*S R Bailey & Company*—An instructive exhibit of electric vehicles was made by this firm

*The Baker Motor-Vehicle Company*—Two commercial cars were shown, one of one-thousand pounds capacity with a panel side body and one of two-thousand pounds capacity equipped with an express wagon body

*Campbell Electric Company*—This display consisted of portable X-Ray and high frequency outfits, transpar-



Attractive Headquarters of The New York Edison Company

encies for low voltage incandescent lamps, electric bells, etc, time switches and thermo flashers

*Columbia Phonograph Company*—Phonographs for commercial purposes were exhibited, including the Dictograph

*Conduit Machine Company*—A new patented machine for drawing wires into conduits was the feature of this exhibit

*Consolidated Telegraph and Electric Subway Company*—Conduit construction as installed by this company in New York was shown, including the ducts, manholes and arrangement of cables

*Crane Company*—Electrically operated valves, traps and steam separators and other auxiliary appliances were shown

*Cutler - Hammer Manufacturing Company*—This company has recently added electric heating and cooking devices to its well-known products. These were exhibited and include electric flat-irons, disc stoves, curling-iron heaters, shaving mugs, coffee percolators and chafing dishes

*The Duntley Manufacturing Company*—The Duntley Company exhibited vacuum cleaners and air-washers. These machines were all of new model and are noiseless in operation

*Economical Electric Lamp Company*—This company had on exhibition several demonstrating machines illustrating the operation of the Hylo lamp. In addition Tungsten Hylo, Pull String Hylo, Turn Bulb Hylo, Pull String Economical, Turn Bulb Economical and Long Distance Hylos were shown

*The Edison Electric Illuminating Company of Brooklyn*—By means of pictures, stereopticon views and moving pictures, different phases of this company's activities were shown; also domestic applications of electric ser-

vice, power applications, power in electric contract work, methods of display lighting for show windows, etc

*Edison Storage Battery Company*—The Edison storage battery as applied to car lighting, electric vehicles and yacht lighting was shown. In addition, ignition batteries and battery parts were exhibited

*The Electric Motor and Equipment Company*—This company's space was devoted to displaying the G-M lamp. This is a scientifically designed reading lamp with many improved features

*Electric Testing Laboratories*—As in the past years, a very interesting exhibit of electrical testing apparatus was shown. The laboratories of this company are equipped for testing electrical devices of all kinds, and a demonstration of part of its work was given

*Electrical Contractors' Association*—Samples of various classes of electrical work as actually installed in a building were features of this exhibit. These included rigid conduit work, panel-boards, concealed and exposed wiring for electric lighting and power, electric bells, burglar alarms, telephones, etc

*Electrical Review and Western Electrician*—Bound volumes of this well known journal and electrical books were shown. As usual, a number of the paper's staff were in attendance to meet old friends and make new acquaintances

*Electric Storage Battery Company*—This exhibition included storage batteries for electric lighting and power purposes, electric vehicles, ignition batteries, etc

*Electrical World*—This publication is one of the best-known technical journals issued, and the exhibit included bound volumes and separate copies, as well as technical books handled by the publishers





Looking Towards Fourth Avenue, Showing Center Aisle

*Empire Vacuum Company*—An attractive display of vacuum cleaners in practical operation was made in this company's booth

*Feature Advertising Company*—This company exhibited six different types of its "Ad-o-Scope," which, as its name suggests, is an automatic machine for throwing stereopticon projections of photographs of advertising matter. The special feature of the exhibit is its new automatic stereopticon for throwing projections on a screen erected on the roof of a building or suspended from its sides

*Federal Sign System, Electric*—This exhibit included patented enameled steel signs, and a highly attractive line of tungsten clusters in units. Other features of the exhibit were a Spalding ozonizer, an electric kitchen cabinet, porcelain and enamel steel

sockets, bushings, outlet box covers and other specialties

*Fox Brothers & Company*—The features of this exhibit were the Fox Multax Century Flame-Lamp, Fox Multax Fifty, Thirty-six, Twenty and Ten Lamps. The Fox Multax Light Deflector, the Watkin Switch and other specialties were shown

*General Electric Company*—Electric heating and cooking devices, an elaborate display of lighting devices, and many electrical applications to various uses were displayed

*General Vehicle Company*—Several types of commercial electric vehicles were shown, and the meritorious features of the machines explained by representatives

*Gould Storage Battery Company*—The Gould Company manufactures storage batteries for electric light and

power purposes, for train lighting, for electric vehicles, etc., and their exhibit covered all of these applications

*Goulds Manufacturing Company*—The Goulds Company are extensive manufacturers of pumps for all purposes and showed a representative line of motor-driven machines

*Gudeman & Company*—In addition to the artistic electrical decorations made by this company, an electric fountain was shown in operation. This is a new departure for the Gudeman Company and will undoubtedly be well received

*C. J. Halle Sales Company*—The Nuway Electric Cleaner was featured in this exhibit. It is a new idea in this type of apparatus and possesses many novel and interesting features

*Helios Manufacturing Company*—As a part of this exhibit the Helios Economical Lighting System for use in connection with moving picture machines was shown. In addition, Helios flaming arc lamps, the standard line of regular arc lamps, Helios storage batteries and other auxiliary apparatus were on exhibition

*Holophane Company*—A comprehensive exhibit of Holophane shades applied to many types of fixtures was made by this company

*Hughes Electric Heating Company*—This company manufactures electric heating devices for innumerable purposes and exhibited a representative line in their booth. Much material of an interesting nature was shown

*Harley Machine Company*—The electric laundry machines were the features of this exhibit. Practical demonstrations of their excellent working qualities were given

*International Correspondence Schools*—Eight technical hand-books were featured in this exhibit. A large electrical library was also shown, together with the method of teaching the 210 courses of the schools

*Joseph Dixon Crucible Company*—This company exhibited graphite specialties, including lubricants, resistance rods, crucibles, axle grease, pipe joint compound, waterproof grease and commutator compounds, together with other products for various purposes

*Kinetic Engineering Company*—This company makes a specialty of motor-driven organ blowers, one of the prominent applications being the patent Kinetic organ blower. A comprehensive exhibition of the company's products was given

*The Lansden Company*—A standard one-ton electric truck and an electric ambulance were on exhibition in addition to a standard industrial truck for use in warehouses, steamship piers, railroad terminals, etc

*Macbeth-Evans Glass Company*—This exhibit of illuminating glassware was made not only to show the large variety of this company's product, but to demonstrate its effectiveness when in actual use on fixtures or appliances

*Manhattan Electrical Supply Company*—A general line of electrical supplies, including house goods, telephones, together with electric lighting and power fixtures, were displayed. Wireless telegraph material was also shown

*Metropolitan Engineering Company*—An attractive display of electric signs, embracing many novel improvements, was made by this company

*Moore Electric Company*—The Moore Tube Light was shown by this company in the lobby of the Garden. Its lighting properties were at once apparent to visitors when entering the Show

*A. P. Morris*—An attractive display of Ideal vacuum cleaners made up this exhibit

*National Electric Lamp Association*—The usual attractive exhibition of the Association was exemplified this year. Every modern incandescent

## The Edison Monthly

lamp was shown, embracing the latest developments of the art

*The New York Edison Company*—The Edison Company exhibited no apparatus, confining itself to reception rooms with telephone and writing facilities, the distribution of advertising literature and the reception of friends and acquaintances

*New York Electrical School*—A Korn Photo-Telegraphic Machine and photographs illustrating the practical nature of the school's course were exhibited

*The Nugget Polish Company*—Nugget shoe polishes were the feature of this exhibit. This polish was the first to be sold throughout the world which combined the properties of a cleaning liquid and polish in one article

*The Opalux Company*—Opalux reflectors for illuminating purposes were displayed. A new line of narrow, medium and wide angle reflectors, designed for use with tungsten lamps from twenty-five to 250 watts, were on exhibition for the first time

*Otis Elevator Company*—This company showed its well-known traction elevator and accessories, which made an exceedingly interesting display

*Peerless Suction Cleaner Company*—A complete assortment of power and manually operated Vacuum cleaners were demonstrated in this company's booth

*Pelouze Electric Heater Company*—This exhibit comprised a large variety of electric irons, a new electric stove built in two sizes, and a complete line of heating devices to be used in connection with the stove

*Philadelphia Storage Battery Company*—A complete line of this company's products, including batteries for all purposes, was shown

*Popular Electricity Magazine*—A demonstration of this popular magazine was given, together with a unique premium. Special offers were made to subscribers during the Show. Talks on electrical subjects for beginners and for practical electrical men were delivered

*C S Powell & Company*—The feature of this exhibit was a 1,000-watt tungsten lamp, the first ever shown in this country. In addition, several types of arc lamps were exhibited

*Public Service Electric Company*—A very complete exhibit of electrical applications for lighting, heating and power was given. Especial attention was paid to the use of electricity for suburban residences

*Reimers Manufacturing Company*—This company is an extensive manufacturer of electric flat-irons and exhibited a complete line of their wares

*Richmond Sales Company*—The Richmond Suction Cleaner was demonstrated by this company. The cleaner has many improved features and is extremely light in weight

*Rider-Ericsson Engine Company*—Electrically driven pumps for domestic water supply were the features of this exhibit. The electric pneumatic tank system manufactured by this company was seen in operation

*Rosenfeld Manufacturing Company*—A comprehensive exhibit of vacuum cleaners made by this company was given, and their operation for cleaning purposes was demonstrated

*The Safety Insulated Wire and Cable Company*—This exhibit consisted of samples of various kinds of cable mounted on appropriate boards. In addition this company showed conduit construction work in connection with an ornamental tungsten lamp-post



# The Edison Monthly



December

1910

VOLUME III

NUMBER 7

## CONTENTS

	Page
Editorial	186
Sokoliski Apartment Building	189
Waverley 1911 Catalogue	189
Holiday Suggestions	191
Electric Steel Furnaces	192
Festive Illumination	193
Self-Contained Curling-Irons	193
Exterior Illumination of the New Gimbel Store	194
Empire Fringe Factory	195
Electricity and the City Budget Exhibition	197
Modern Lighting of Stores	198
The Field Electric Omnibus	199
Electric Vehicle for Transportation of Gunpowder	201
Novel Curling-Iron Heater Installation	202
Attitude of Some Business Men Toward Motor Trucks	203
To an Electric Kettle	205
Williamson Electric Flexilyte	206
The Most Northerly Elevator Apartment in Manhattan	206
Searchlights and Flaming Arcs Used on Panama Canal	207
Private Plant Abandoned in the Hotel Aberdeen	208
Types of Store-Lighting	211
New Cord Adjuster	212
The "Reliable" Clipper	212
Manhattan Trade School for Girls	213
Electric Trucks in Endurance Test	214
The Sterilization of Drinking Water	215

# Editorial

## *The Edison Monthly*

Published by

### *The New York Edison Company*

General Offices

55 Duane Street New York City

President

ANTHONY N BRADY, 54 Wall Street

Treasurer

JOSEPH WILLIAMS, 55 Duane Street

Secretary

LEWIS B GAWTRY, 4 Irving Place

THE EDISON MONTHLY extends to all of its readers and friends the best wishes for a Merry Christmas and a Happy New Year.

Outdoor advertising has proved so remarkably successful and remunerative that even the most skeptical critic must admit its value. The one thing that has done more to develop this form of advertising than any other is the liberal, even lavish, use of electric light.

There are many forms of outdoor advertising; it may consist of brightly illuminating the exterior of a building, or of an illuminated bulletin, but it now appears most frequently in the shape of artistic electric signs of many and varied combinations.

Compare a street brilliantly illuminated and displaying many electric signs with a dimly lighted

street, and note the difference in the number of pedestrians.

It has been demonstrated many times that the increase in the night business of merchants, where improved lighting has been installed, was far beyond their most sanguine expectations. In fact, it may be truly said that increased lighting and increased business are synonymous terms.

That electric lights prove effective in scaring away burglars was recently demonstrated in a nearby city. The owner of a residence there had removed to his summer home and boarded up his town house. During the absence of the family, burglars tried to break in but found an electric light burning that had been forgotten, and the thieves got no further than the outside. The owner of the building considered himself well repaid for the current consumed by the burning of the lamp all summer.

The small electric motor has unnumbered uses in the household and saves much time and labor. Among its applications may be mentioned the dish-washer, dough-mixer, ice cream freezer, electric ironer, meat-chopper, small buffer and polisher for silver, knives, forks and spoons and the ventilating fan.



For the small home where it is desired to avoid the expense of a motor for each individual machine, universal motors are manufactured which are easily portable, and which can be attached to any machine.



When building or remodeling apartment houses and dwellings too much attention cannot be paid to proper outlets for convenient attachment of practical devices. These outlets can be located in the base-board or chair rail or flush with the wall, and form no obstruction whatever. It is only necessary to place the apparatus to be used wherever convenience dictates, and insert an attaching plug in the receptacle. These outlets will also be found a great convenience for attaching portable lamps for table or desk use, for reading lamps in the bedroom and many other purposes.



Sanitary conditions are of utmost importance in every household, and the use of electricity materially aids to maintain the home in a healthful state. Electric devices are clean, consume no oxygen, and the heat is concentrated on the actual work, and is not dissipated throughout the atmosphere of the room where cooking is done. With coal stoves much heat is lost through radiation and through escaping up the chimney. With electric utensils, energy is consumed only while the current is turned on, there is perfect regulation and control, and the device is instantly available for use night or day.

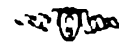
In every household electric heating and cooking devices will be found economical, efficient, and can be used with much more comfort and safety than devices requiring other forms of artificial heat.

It matters not whether the house is large or small so far as the applicability of electricity is concerned. From the smallest apartment to the largest private residence, cooking appliances, electric irons, sterilizers, radiators, heating pads, foot warmers, laundry apparatus and innumerable other devices have an unlimited field.



The ever present danger from high-pressure boilers was again forcibly illustrated by a fatal explosion that recently occurred in this city. The boiler in a large manufacturing company's plant exploded, killing seven employees instantly and doing a large amount of damage to the company's property.

The list of fatalities from such a cause is a long one, and despite every precaution these accidents happen which, aside from the loss of life, involve severe financial losses. This danger is present in every building in which high-pressure steam is used.



There is one way in which it can be absolutely eliminated, and that is by adopting Central Station service. Where it is used high-pressure boilers and engines are unnecessary, and continuous twenty-four hour service is assured every day in the year.

# Edison Service in Large Apartment Buildings



New Apartment Building 16-20 East Seventh Street, owned by Mr Harris Sokoliski  
Edison Service is used throughout for light and power

## Sokoliski Apartment Building

THIS modern high-class apartment building is equipped throughout with Edison Service for light and power. One of the principal features of the electrical installation is the compact arrangement of the tenants' meters in the basement, as shown in one of the illustrations.

This manner of installing meters has proved a great convenience to occupants of the apartments, as the meters can be read at any time without disturbing them.



Compact Arrangement of Tenants' Meters, Sokoliski Apartment Building

The meter arrangement in this apartment is of interest, representing the latest design for use in such a location. The meter loops are put in Greenfield flexible conduit, making the wiring up-to-date and fire-proof. There is no wiring visible, so that the box cannot be tampered with by outsiders.

## Waverley 1911 Catalogue

THE 1911 catalogue of The Waverley Company is unusually handsome and artistic. It is nine by fourteen inches in size, printed

on heavy enamel paper and bound in imported hand-made cover stock of a rich mottled brown. On the second cover page is mounted a photograph representing a Waverley open carriage driven by a handsome little girl of four in one of the parks of Los Angeles.

The illustrations include thirteen full-page half-tones representing Waverley 1911 Models with black ground illustration. The prominent features of the park series in the leading American cities





Appropriate Holiday Gifts, Consisting of Electric Cooking and Heating Appliances

## Holiday Suggestions

**T**HE trend of popular sentiment at the present time is toward the giving of useful presents that may be employed in everyday life, rather than articles that are intended solely for adornment.

There are no more acceptable gifts of a decidedly practical nature than electric heating and cooking devices, a few of which are illustrated on the opposite page. From left to right in horizontal rows there are a waffle iron, five-inch stove, six-inch stove, with a tea-kettle, double boiler and blazer; a traveler's stove, coffee percolator, coffee pot, toaster stove, toaster; dining-room set, consisting of a coffee percolator on a stand, a tea-kettle and chafing dish, an electric iron, a tea-kettle on legs and an individual chafing dish.

The process of preparing various dishes on electric utensils is naturally of interest to all prospective users. For their information a few details of the cost of preparing certain viands is given here, with the exact expenditure for current for each.

A toaster can be used for fifteen minutes at a cost of  $1\frac{1}{4}$  cents; fried oysters with bacon, prepared in the blazer of an electric stove, consumes 2 cents' worth of current; to prepare creamed oysters costs  $1\frac{3}{4}$  cents; finnan haddie, 2 cents; lobster a la Newburg, 2 cents; chicken and mushrooms,  $2\frac{1}{2}$  cents; spring chicken,  $2\frac{1}{2}$  cents; lamb chops with vegetables,  $2\frac{1}{2}$  cents; sweet-breads,  $2\frac{1}{2}$  cents; plain omelet,  $1\frac{3}{4}$  cents; cheese omelet, 2 cents; Spanish omelet,  $2\frac{1}{4}$  cents. To boil eggs, the water-cup may be used on the dining-room table and one cup of water can be boiled for  $1\frac{1}{2}$  cents; Welsh rarebit may be made for  $1\frac{1}{2}$  cents; griddle cakes baked on the electric stove for  $2\frac{1}{2}$  cents for  $1\frac{1}{2}$  hours' operation.

There are many other savory dishes too numerous to mention that may be made on electric utensils, and the cost is very little more than the figures given.



### Electric Steel Furnaces

**E**LECTRICITY has made great changes in many manufacturing processes and its applications in the steel industry are varied in the extreme. Electric furnaces especially have met with great success. The following extract from an editorial in a recent issue of the *Electrical Review and Western Electrician* takes up the

pensive, largely on account of the small quantities of steel which can be handled at one time. In the electric furnace much larger charges can be accommodated, there is less handling involved, and the operation is much cheaper. This is especially true where power can be obtained at a low cost to operate the furnace.

"Electric steel furnaces have been installed at various places in this country, and all seem to be meeting with success. In many places the current used has to be generated from steam, and even here where the cost of power is not exceedingly low the process is a recognized commercial success. Where power can be obtained at a low cost there is no question of the superiority of the electric-furnace method. This is well illustrated in the case of the Hiorth furnace, which was described by Prof Joseph W Richards at the recent meeting of the American Electrochemical Society, as chronicled on other pages of that issue. This fur-



A Corner of the Electrical Department, Messrs Gimbel Brothers

pertinent features of this branch of the industry:

"It has been established for some time that the electric furnace is capable of producing a grade of steel quite equal in quality to crucible steel. Formerly the crucible process was recognized as the only available process for obtaining the highest quality of steel. The crucible method is ex-

pensive, largely on account of the small quantities of steel which can be handled at one time. In the electric furnace much larger charges can be accommodated, there is less handling involved, and the operation is much cheaper. This is especially true where power can be obtained at a low cost to operate the furnace.

"Electric steel furnaces have been installed at various places in this country, and all seem to be meeting with success. In many places the current used has to be generated from steam, and even here where the cost of power is not exceedingly low the process is a recognized commercial success. Where power can be obtained at a low cost there is no question of the superiority of the electric-furnace method. This is well illustrated in the case of the Hiorth furnace, which was described by Prof Joseph W Richards at the recent meeting of the American Electrochemical Society, as chronicled on other pages of that issue. This furnace takes the pig iron from the Swedish blast furnaces, intercepts it on its way to England, purifies it in the electric furnace, and then delivers to Sheffield a steel which is quite as good as any they can produce with the crucible process. This achievement points to the discontinuance of the crucible process of making steel, not only at Sheffield, but at other steel centers."

## Festive Illumination

THE observant public may have noted that night exhibitions, celebrations and parades have increased in frequency and brilliancy since the introduction of electric illumination.

With no other illuminant can the same wonderful effects be obtained and maintained. Imagine the Hudson River celebration of a year ago without electric lights. The day tag-rants were of course interesting and beautiful, and attracted immensurable thousands to view them, but it was the night spectacles with their magnificent electrical embellishments that drew the greatest throngs and held them until the lights went out. No other illuminant could have sketched our great East River bridges, our immense skyscrapers, the battleships of the Hudson, vividly against the night's black background.

## Self-Contained Curling-Irons

ONE of the heating devices which will be put on the New York market in time for the Christmas trade is an electric self-contained curling iron. While this cannot be called absolutely new to the New York public, it is practically so, for it is a Western product and hitherto the sales have been pushed only in the West. Its chief advantage over the curling iron heaters now customary in hotels is naturally its individual use. It heats more quickly, it can be operated with greater speed, and works on only a few ounces, making it an ideal device for the feminine traveler. In appearance it differs slightly from the ordinary iron, the only visible signs of the electric heating is the being the weight to be the handle and the electric cord being is about 10 feet long and can be attached to any ordinary lamp socket.



A Large Variety of Electric Cooking and Heating Devices, Electrical Department, Messrs. Gimbel Brothers

## Exterior Illumination Of the New Gimbel Store

THE Gimbel Store, at Broadway and Thirty-third Street, has introduced this month in New York the Western custom of exterior store lighting as a part of the holiday decorations. As shown by the accompanying picture, the display is brilliant in the extreme, forming an adver-

tisement as beautiful as it is striking.

No less than 216 windows are lighted, with seventeen four-candle-power lamps in each, making an aggregate of nearly 15,000 candle-power. The entire equipment was put up in less than a week, seventeen men working day and night to finish in time.



### Empire Fringe Company

**A** NEW factory has been built in The Bronx, on Faile Street, by Messrs Sachs & Mills, where ornamental materials for upholstery are made, such as silk fringes, tassels, cords, ruffings, etc. The building is five stories high and constructed of brick. Messrs Sachs & Mills occupy the top floors, letting the lower ones out to other tenants. At first the installation of a gas generating plant was seriously contemplated for supplying power, but the firm was finally convinced that Edison Service would be cheaper and more convenient. They were assured that operating costs with electricity from the Edison mains could be confined to \$30.00 a month, which assurance has been verified, much to the satisfaction of these manufacturers.

The conditions governing the operation of this factory showed that the individual arrangement of motor drive was best suited to the work, owing to the low time factor of the factory as a whole, and also to the advantages to be gained by placing each machine in the location best adapted to the light and the convenience of handling the material for manufacture.

The following table will indicate the machinery equipment and the motor installation:

3 ruffling machines	$\frac{1}{4}$ hp motor each
5 fringe looms	$\frac{1}{2}$ " " "
1 spool machine	$\frac{1}{8}$ " " "
2 cord machines	$\frac{1}{2}$ " " "
1 spinning machine	$\frac{1}{8}$ " " "
1 winding machine	$\frac{1}{4}$ " " "
3 cord machines	$\frac{1}{4}$ " " "
1 cord machine	$\frac{1}{8}$ " " "

1 plaiting machine	$\frac{1}{4}$ hp motor
1 double circle saw	1 " "
1 elevator	5 " "

The total motor capacity is 117½ horse-power, of which 57½ horse-power drives the factory.

When the looms are in operation

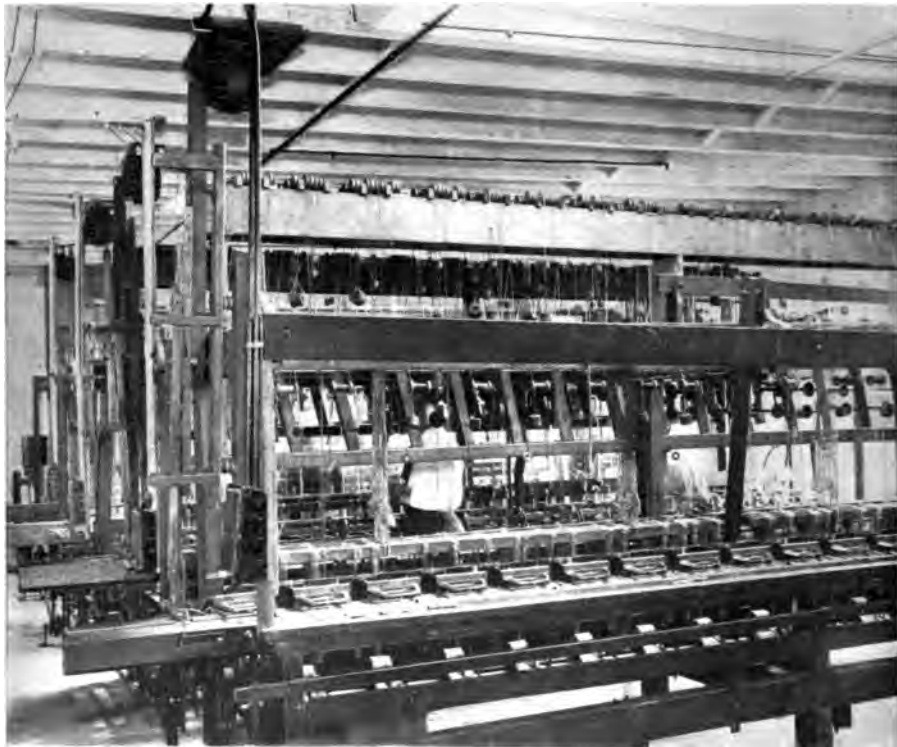


**Motor-driven Carding Machines, Empire Fringe Company**

the frequent stops to attend to threads, material, etc, reduce the running time to fifty per cent of the whole; all of the five looms are not always in operation at once, allowing a further reduction in the time factor. The spool winders and the plaiting machines require the greater part of

the remaining power used. Reducing the loom and winding machine requirements to power consumption for a 235-hour month shows a result of 230 kilowatt hours. The ruffling and spinning machines are run very intermittently and consume but little power. Since the saw and the ele-

avoidance of fire risk. Among the indirect advantages may be named the improved conditions as regards light and ventilation, which contribute toward increasing the efficiency of the workers; absence of vibration, which lessens the depreciation of the building and ability to add to floor loads



German Looms Driven by Induction Motors, Empire Fringe Company

vator are but seldom used the cost of power for their operation is correspondingly low.

This factory's electrical operation furnishes another example of the many advantages of electric drive, among which are particularly emphasized flexibility, reliability, saving on overtime work, increased production, saving of valuable space,

when heavy shafting is removed from the ceiling below.

In the home Edison Service furnishes the safest, most convenient and healthful of illuminants, relieves domestic labor of its drudgery and adds in countless ways to the comforts and refinements of life.



## Electricity and the City Budget Exhibition

**T**HIS last month saw the close of one of the most remarkable of a long list of exhibits that have been given in New York City. Following the pioneer Congestion Exhibit, the City Planning Exhibit, the Tuberculosis Exhibit, this latest attempt could only hope for success in its excellence of selection and presentation of matter. That this situation was met is amply attested to by the fact that for the twenty-eight days of its existence the visiting crowds numbered 500,000, while on days when prominent men were scheduled to speak the attendance would run up to thirty or thirty-five thousand. A movement is now on foot to have a similar exhibit made an annual event.

But of the throngs who visited the exhibit how many realized how great a part electricity played in the showing? First and foremost there was the matter of lighting. It was highly undesirable that any flame be allowed in such crowded quarters. Some four hundred and fifty electric lamps of varying powers were therefore used to display the exhibit. Announcements were made through the electric press bulletin placed in the window. Electric power was used to operate a telautograph machine, and the counters in the bill service exhibit. Demonstrations of police drills and similar branches of city service were portrayed in moving pictures, as they could have been in no other way.

It is an additional point of interest that after the wiring had been

made the city officials gave the Edison Company only an hour and a half in which to complete the work, and that the Edison service was ready and in working order on that short notice.



An Electric Talking Clock which operates thirty advertisements and a phonograph to attract the attention of passers by. Made by the Talking Clock Manufacturing Company, 70 Cortlandt Street

### Modern Lighting of Stores

**I**N these days of progress and improvement the up-to-date merchant must realize that to keep abreast of the times it becomes necessary for him to use up-to-date methods of doing business, and, if possible, to keep just ahead of his neighbor.

The question of store lighting is of supreme importance when one considers the thousands of men and

the warm, brilliant aspect presented by a well-lighted store that attracts the public and increases the purchasing power tenfold. In any large city it can be noticed that the majority of people at night patronize the stores that are located on the side of the street or avenue that is most lighted. It is a common sight to see one side of an avenue crowded while the other side is almost empty, due to the fact



An Example of Fine Show Window Lighting, Messrs Hicks & Son, 1179 Broadway

women who, in the evenings take their families or stroll alone through the lighted thoroughfare making their purchases. Often, they are undecided as to just what they desire, and naturally they are drawn to the store that makes it a point to present its wares most attractively.

No one ever cares to gaze into a gloomy or dimly lighted store. It is

that the well-lighted stores attract.

Some time ago it was said that scientific salesmanship was the best asset a merchant possessed, but nowadays it is different. The interest created by well-lighted goods neatly displayed is far more productive than any other method used, the object being to first interest the customer, after which the sale is assured.

## The Field Electric Omnibus

**A**FTER years of development work Mr. C. J. Field, who in years past has been prominently identified with the Edison Central Station interests and the building of electric railways in a number of the large eastern cities, including Buffalo, Philadelphia, Worcester, Bridgeport, Newark and

charge of half a day's service, equal to fifty to seventy five miles, depending on roads, grades, service, etc. This car, as shown by the illustration, is twenty two feet long over all, by seven feet ten inches wide, and has a wheel base of thirteen feet six inches. The body, without platforms, is seventeen feet in length, has cross seats of regulation length



Tungsten Lighting in Messrs. Rand, McNally & Company's Office, 42 East Twenty-second Street

other places, has completed and tried out at the Edison Works in Orange, his first electric omnibus, operated with the Edison Storage Batteries.

The Field omnibus, seating thirty passengers, is built to operate on public roads without tracks, and will have a radius of travel on one

of thirty three miles, with nineteen inch wire spring, rattan seats and backs. The total weight of the car is under 8,000 pounds, of which twenty per cent is in Edison Storage Batteries. The motor equipment consists of two motors of seven horse power each on the basis of trolley car rating. The drive

from the motors is direct with Morse silent chains to sprockets on the rear wheels in the ratio of fifteen to seventy-one, with nine-tenths-inch pitch. The front and rear wheels are respectively thirty-four and thirty-six inches in diameter, equipped with four-inch single and four-inch dual solid rubber tires respectively, with Timken roller bearings for the city type and

tically flat under load. Two-thirds of the load above the springs is carried by the rear and one-third by the front spring.

The frame of the chassis consists of ash strips one and one-fourth by five inches, faced inside and out with one-fourth by five-inch cold-roll strip steel, the cross members being rolled channels. The fittings for the springs are all riveted to this frame, to



The Field Electric Omnibus. Mr Field standing at Mr Edison's left

floating bronze bushings for the interurban type. The wheel construction is amply strong to meet all requirements for severe service. The axles are imported nickel chrome steel forgings of the very highest grade and low in carbon, with a tensile strength of 130,000 pounds per square inch. The springs, made by Lemoine, of France, of the very finest manganosilicon steel, are half-elliptic with nine leaves in the front and eleven in the rear, and are prac-

which the body is directly attached.

The Electric Omnibus & Truck Co, 135 Broadway, New York, and Passaic, N J, are building these busses, which are of the city type and also an interurban type, to operate without a conductor. Smaller type busses will be built later. These omnibuses were designed by Mr C J Field, assisted by Mr Raymond Cillely, engineer of the company, with the additional benefit of Mr Edison's inspection and suggestions.

## Electric Vehicle for Transportation of Gunpowder

**T**HE Studebaker Company is making delivery to the Union Metallic Cartridge Co., Bridgeport Conn., one of their Model 26 machines, which has some unique features

about a year and a half, and as the result of their consultation with the Studebaker engineers it was proved that an electric wagon could be so equipped as to insure absolute protection against any danger from ignition to the powder. The compartments of the vehicle in which the powder will



Studebaker Electric Carriage of Wheel Built for the Union Metallic Cartridge Company for the Transportation of Gunpowder

in its equipment overcome the dangerous nature of the load to be carried.

The motor is a portable power vehicle for the transportation of powder from the cutting powder houses to the manufacturing establishment of the Union Metallic Cartridge Company has been under consideration for

be carried is practically hermetically sealed and is constructed in such a manner that it is almost free of the use of oil in any exposed member which would likely increase friction and consequent ignition.

The controller and such other portions of the apparatus at which spark-





Electrically Heated Coffee Urns  
Messrs J & M Cohn

mur. He's away from his business and doesn't care.

"But how does he treat the motor truck question? If he hasn't any he calls himself conservative and waits to learn the results of Jones' experiments in the same line of business. If Jones appears satisfied, then our friend buys some trucks. When he gets them, what follows? Our business friend takes special delight in watching the expense table set as a watchdog on the performance of the trucks. He does not make any allowance at

all for an engine occasionally being affected by misuse by a fool chauffeur. He fails to remember that when a \$300 horse dropped dead on the street he treated it as a matter of course and bought another \$300 horse to replace it. He seems to think that by some magical means a piece of machinery can be set in motion for an indefinite period without care or attention—that is, if it's a motor truck. He knows a pleasure car can't accomplish this, but the truck should, in his opinion.

"So he sits in his private office and looks over his reports. His eye lights on a comparison of motor truck costs with costs of a month ago and he finds for some reason that his ten trucks cost twenty-five per cent more in repairs this month than the last, and he roars out a call for Brown, his executive. Brown comes in and he demands to know why the expense was twenty-five per cent more for a month; perhaps the twenty-five per cent may only amount to ten dollars, but he



Installation of Electric Irons, Messrs J & M Cohn

treats it as if it were only \$10,000.

"Brown explains, and our business friends get cautious, complaints of extra expense, groans about economy and orders one or two trucks pulled out of service to make up for this extravagance—an extravagance of ten dollars extending over thirty days. So the chauffeurs are discharged and the extra work placed on the remaining eight cars, who has the worst kind of extravagance.

"Strange, isn't it, board member? businessmen treat expense in the office, even when necessary and not excessive, somewhat with the extravagance devoted to their personal amusement?

"Such methods of running a business, the business man knows in his heart, is not far in business. As a large user of motor trucks—nearly 150—I know that they are an economical business tool, and better methods as just described are not only unprofitable, but they do not reflect upon the business man who practices them.

With a small electric burner and polisher in the household, you can clean the silver, brass and other ware quickly, perfectly and without the least exertion.

## To an Electric Kettle

You are a little more than a year old now,  
 But I have not forgotten the first time  
 You were.

And I have not forgotten the first time  
 I saw you.

Unsettled I was then, and I am  
 Yet am I not less so, that old time  
 I much preferred you in the old attire  
 You wore when Paddy put you on the fire.



Sewing Machines Operated by Electric Motor, Model J & M Co. Inc.

As the years go by, I am sure that you  
 Will be a great success in your career,  
 And I will be proud to call you mine.

So I will be sure to keep you in the  
 Best of health, and I will be sure to  
 Keep you in the best of health, and I will be sure to  
 Keep you in the best of health, and I will be sure to

So I will be sure to keep you in the  
 Best of health, and I will be sure to  
 Keep you in the best of health, and I will be sure to

—Edison's Little Boy

—Edison's Little Boy

### Williamson Electric Flexilyte

**T**HE Williamson Electric Flexilyte has the distinction of being the only portable electric light extension which is adjustable, compact and suitable for use when traveling.

Briefly described, it is a case containing about fifteen feet of lamp cord, an attaching plug, and a crank for winding the cord on the center portion, which is a lamp socket. The cord can be unwound to any desired length, and held fast by means of a sliding catch.

It is not necessary to carry a lamp, as a standard incandescent lamp fits the Flexilyte socket and may be transferred from any fixture to the Flexilyte case. The attaching plug is also standard and is screwed into the fixture socket after the lamp has been removed.

The Flexilyte case is so designed that it can be placed on a polished sur-

face without danger of marring or scratching it. It is very neat in appearance, well constructed, and is small enough to be easily carried in the pocket.

### The Most Northerly Elevator Apartment in Manhattan

**N**OTHING indicates more clearly the growing popularity of the thoroughly equipped modern apartment, with all the latest electrical appliances for lighting, cooking and cleaning, than the erection of a six-story apartment building on 225th Street, which is referred to by real estate dealers as the "most northerly elevator apartment in Manhattan."

Although geographically far beyond the apartment region of this borough, it was planned to compete in advantages with the best of those in the Morningside, Riverside and Washington Heights districts. Lo-

cated on a considerable elevation at the corner of 225th Street and Marble Hill Avenue, the building overlooks the Harlem Ship Canal, Spuyten Duyvil Creek and the Hudson River and commands beautiful views from Fort George to Yonkers and the Palisades.

The building is equipped with electric elevators for the convenience of the occupants, and telephone service to each apartment from a switchboard on the premises. A vacuum cleaner will be installed, which thoroughly modernizes housekeeping



Williamson Flexilyte, Used as a Reading Lamp

and eliminates the unsanitary dust raised in the old-fashioned process of sweeping. A characteristic apartment is located on the ground floor, which consists of two rooms, bath and kitchenette. As to the electric system, the Edison Electric Company has installed a complete system of electric lighting, heating, and ventilation. The system is designed to operate on a 110-volt, 60-cycle current, and is capable of supplying a maximum of 100 amperes. The system is designed to operate on a 110-volt, 60-cycle current, and is capable of supplying a maximum of 100 amperes. The system is designed to operate on a 110-volt, 60-cycle current, and is capable of supplying a maximum of 100 amperes.



NEW LAMP DESIGN FOR THE PANAMA CANAL

The new lamp design for the Panama Canal is a masterpiece of modern lighting design. It is a black, cylindrical lamp base with a silver-colored metal ring around the middle. The base has a small, circular opening at the top and a small, rectangular opening on the side. The base is mounted on a stand.

## Searchlights and Flaming Arcs in Use on the Panama Canal

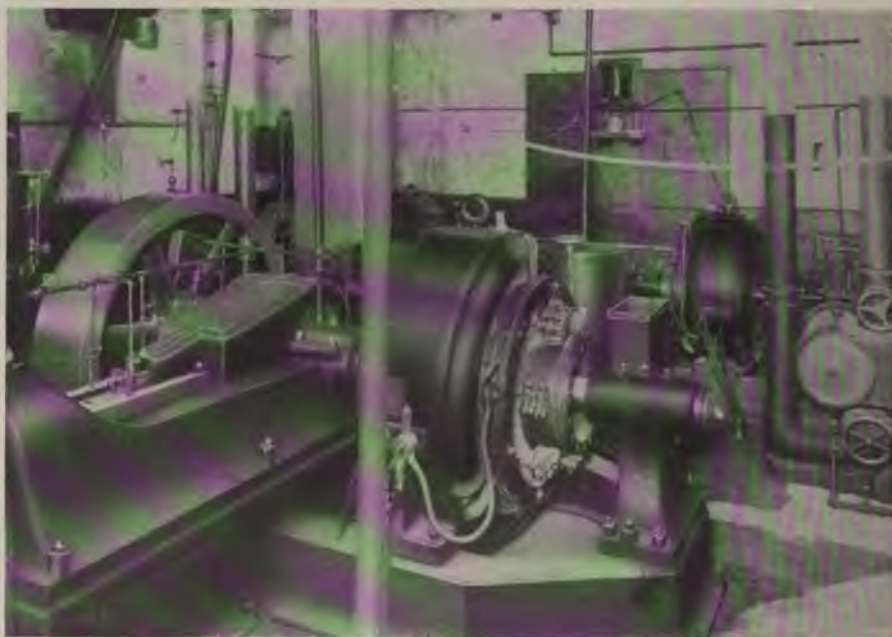
The use of searchlights and flaming arcs on the Panama Canal is a testament to the power of modern lighting technology. The searchlights are used to illuminate the canal at night, and the flaming arcs are used to illuminate the canal during the day. The searchlights are used to illuminate the canal at night, and the flaming arcs are used to illuminate the canal during the day. The searchlights are used to illuminate the canal at night, and the flaming arcs are used to illuminate the canal during the day.



### Private Plant Abandoned in the Hotel Aberdeen

**T**HAT "electricity is life" is exemplified by the uses of electricity in a modern hotel. There is a hotel on the Pacific Coast in which electricity is used for light, heat, and power, there being no steam or gas used on the premises; there is not a boiler installed on the premises

proprietor. It will mean a cable bringing the light and power, instead of the coal-bin, the ashes, smoke, soot, oil, odor and vibration. Any one who has slept in a hotel within reach of the noise and vibration of moving machinery can appreciate the advantages of a hotel plant where machinery is done away with. It is axiomatic, therefore, that if electricity can be purchased for the same



Part of the Abandoned Private Plant at the Hotel Aberdeen

or even a chimney in the building.

Shall a hotel operate its own boilers, engines, dynamos or electric generating plant for both light and power, or shall the space be devoted to other purposes? Shall a hotel buy or make electricity is a question, the decision of which often determines success or failure. If electricity is bought from the outside, it will mean less risk, less worry and anxiety for the hotel

price that it can be manufactured, any hotel proprietor would prefer receiving it through a wire from a station away from the hotel than having the machinery in the building with the noise and heat caused by it.

Mr E H Manning, formerly manager of the Hotel Touraine of this city, now manager of the Hotel Aberdeen, 17-19 West Thirty-second Street, has carefully experimented for



the purpose of determining which is the cheaper way to furnish a hotel with electricity. While manager of the Hotel Touraine he closed down the isolated plant which was then operating and purchased his electricity from the outside. The actual records from his books showed that there was an annual saving by this method. Within the last four months Mr Manning has shown, by the use of Central Station electricity at the Hotel Aberdeen, that he will save several thousand dollars a year over what it formerly cost to manufacture the current within the hotel.

The actual saving and operating expenses is not the only economy. The basement space formerly required for the plant is to be partly rented for the purposes of a barber shop, bringing a large annual revenue to the hotel. Fluctuations in the lights, formerly an annoyance to the hotel guests, have been eliminated; the elevator service has been improved, and apartments, formerly not rentable on account of the heat and vibrations from the engine room are now a source of revenue.

The Hotel Aberdeen, situated on West Thirty-second Street, between Fifth Avenue and Broad

developed center of New York, a locality recently made so important by the opening of the new Pennsylvania Railroad Station.



Exterior of Hotel Aberdeen, 1717 West Thirty-second Street



Interior View of Park & Tilford's, Corner Fifth Avenue and Twenty-sixth Street. The fine lighting makes it possible to see everything in the store very plainly



Exterior View Taken at Night of Park & Tilford's, Showing the Brilliant Window and Interior Lighting

## Types of Store-Lighting

**I**T is the object of The New York Edison Company to try out various kinds of store lighting, including trials of reflectors as well as of the lamps themselves, and to give the results in a practical form for the benefit of the public interested.

The accompanying picture shows a

Street, is another example of what can be done in the way of successful store lighting, using a combination of tungsten and tantalum lamps. The store is lighted with six chandeliers equipped with 60-watt tungsten lamps, provided with reflectors designed to distribute the light. The eleven windows, facing both on Fifth Avenue



Night Picture of the 424 Broadway Office of The New York Edison Company. This shows not only the leaded glass in the window, but the pictures in the rear walls some distance from the camera.

recent form of lighting as demonstrated in the Broadway office. The splendid results attained here are obtained from sixty-three 125-watt, 120-volt lamps, all of the 125-watt tungsten lamp.

The new branch of the Park & Tenth Company, opened this Fall at Fifth Avenue and Twenty-sixth

and Twenty-sixth Street, are fitted with twelve 100-watt tantalum lamps each.

This is a large one of the best offices on Fifth Avenue.

An electric hoist will do the work of several men in a much quicker and more satisfactory manner.

## New Cord Adjuster

A NEW cord adjuster for drop lights has recently been placed on the market by the National Electric Specialties Company, 20 Broad Street, New York, which is unique in construction, in that it differs radically from the many adjusters which are now in common use. It is claimed that this adjuster, while possessing all the advantages of the well-known ball, has none of the disadvantages which have arisen with the use of the balls.

This adjuster is made in several styles. The "Slip-on," as the adjuster is called, consists of two pieces of hard white porcelain held in position by a small spring passing through the center.

One type, known as the "Duplex," is a combination adjuster and shock absorber for use with tungsten lamps, which is especially adapted to factory use where high efficiency lamps are suspended by lamp cord.



The valuable space occupied by the engines and boilers of private plants can be utilized much more profitably in buildings that receive Edison Service. And this economy, important as it is, is not half the story of the superior advantages of Edison Service over the private plant.



## The "Reliable" Clipper

AMONG the many commendable features, the most important one is an extremely compact and powerful electrical motor to which the clipping blades are attached without the intervention of the usual flexible shaft, thus forming a complete hand tool in itself.

This motor, considering its small size and low weight, develops fully one-twentieth of a horse-power, and it is so constructed as to form an "Enclosed Type Machine," thus making the motor as dustproof as possible. The clipper, with the exception of the electrical parts and cutting blades, is made entirely of aluminum. It can be operated on both alternating and direct-current circuits. Caldwell & Osterhoudt Corporation, New York, is the manufacturer.

An electric heating pad is of great comfort to people who suffer from cold feet.

# Manhattan Trade School for Girls

WHICH TEACHES THE OPERATION OF ELECTRICALLY DRIVEN MACHINERY

**T**HIS fall, by leasing the building and equipment of the Manhattan Trade School for Girls, New York City has come into possession of the foremost institution of its kind in this country, where more than 600 girls are taught annually to become skilled operators of electrically driven machinery.

The course includes the management of the ordinary power sewing machine and the cotton lace stitch, hemstitch, buttonholing and embroidery on the complicated Bonnaz machine. In the paste and glue work training the pupils are taught to use electric sheeps.

The fact that electric equipment is thus inserted into the leading girls' trade school in America is significant in several ways. The Trade School aims to turn out workers that enter the best shops of every industry and to prepare the girls so that they can secure the best market wage for all its ever work the undertaking. By recognizing a mastery of electrically driven machines, the school trades authorities voice their conviction that the best factories and shops of the nation will employ electricians as well as other electricians.

Further, the curriculum will insure that the skilled operators who want to command the highest wages must be prepared to operate electrically driven machines. Still further, since the directors of this, the leading trade

school outside of Europe, aim to fit their pupils to enter industry where the best working conditions obtain, it is frankly accepted that shops and factories operated by electric motors offer the desired trade environment.

Educators are coming to realize that any kind of vocational training is not better than none at all, that for either boy or girl to be instructed in methods soon to become antiquated will be more of an industrial handicap than to allow them to enter a trade entirely untaught.

This stand was made clear at a meeting of vocational training advocates last Spring. A school principal in attendance, the meeting probed himself on the subject of preparation which he had been able to add to the regular work of the school for hand sewing. It had been generally related, at the gathering, that in most grades were being taught to operate the sewing machine. The speaker then declared that a trade instructor present could not that equipment such as the sewing machine or hand was now useless in the preparation of workers, and that by training the girls in electrically driven machinery they would be better prepared to enter the future market of helping them to better themselves.

The only trade instructor that would really be a value, it was stated, was that which taught the pupils how



to operate the electric machines now in use in all the first-class establishments in Manhattan. By taking the advanced stand eight years ago the Manhattan Trade School for Girls has the pleasure of seeing its graduates now holding positions in shops and factories where they are receiving wages of which the minimum is \$5 and the maximum \$30. Even its beginners on entering their trades are able to start above the usual \$3 a week; on beginning work these girls receive from \$4 to \$7, depending somewhat on the trade which they are entering, but more upon the skill which any one girl has been able to acquire during her course.

One of the interesting features of New York City's Vocational School for Girls is the fact that a girl is taught not only one trade, but at least two, so that she can shift from one branch to another as the market demands. This is on account of the seasonal character of most of the trades opened to girls and women in New York. Several hundred operators are put on for the "rush" season in the business and laid off at the close of it. The rush season may not be more than ten or twelve weeks long at best in some of the most lucrative occupations. If, however, a girl could be taught to "turn her hand," as the Yankees say, to several branches of operating, she would be well provided for the year. Finishing the rush season in her special line, in which she as a highly skilled operator might obtain \$15, \$20 or even more a week, for the rest of the year she could take work where she could find it, though not at as good a wage as in her particular specialty.



Contractor's Electric Hoist Used in the Construction of Building at Thirty-fourth Street and Fourth Avenue

### Electric Trucks in Endurance Test

EXCELLENT records were made by the electric vehicles entered in the two days' endurance test conducted recently in Westchester and Long Island under the auspices of the *New York American*. Of the forty-nine cars entered, both gasoline and electric, twenty-seven came through with perfect scores. Of these, fourteen were gasoline and thirteen were electrics, although the gasoline entrants outnumbered the electrics at the rate of almost three to one.

The winners in the Owners' Division, electric, are the John Meyer five-ton General Vehicle truck, the New York three-ton General Vehicle truck, the John Wanamaker's three-ton commercial truck, and the five-ton General Vehicle Company's Truck.

Edison Service is the motto of cleanliness and comfort.

## The Sterilization of Drinking Water

**A** PART of the purely experimental work in scientific institutions and research in bacteriology and hygiene has been successfully applied to the sterilization of water. It is shown that in a public building, a sterilizing apparatus is especially applicable.

Messrs. Siemens & Halske, of Berlin, have developed a number of forms of sterilization plants, which have proved very successful.

The sterilizing ozone installation for small quantities of water, from 800 to 2,500 gallons capacity per hour, is at the largely in use in foreign countries for domestic purposes, for mineral water plants and in large brew-

eries for the sterilization of water used for washing out the vessels.

Such an installation consists of the following parts:—  
(1) A sterilizing device, or ozonizer, for the generation of ozone, with two electrodes, the anode being connected with the positive terminal of the direct current, and the cathode with the negative terminal of the same.

(2) An installation of a direct current for driving the ozonizer, consisting, in alternating current, of a generator and at the same time, a motor of belt or chain gearing, an air blower and water pump.

(3) A wall bracket, on which stand two Siemens type ozonizer elements, the type so well known in the literature of ozone. This same bracket also carries, in addition to an electrical measuring instrument and switch for the primary circuit of the transformer, the transformer itself.

(4) A switch-board with cut-in, voltmeter, and fuses, and underneath these a rheostat for the electric motor and resistance for the exciter of the alternating current machine.

Plants of this kind are generally equipped with the very latest electrical safety devices.



Siemens & Halske Electric Ozonizing Apparatus as Used in a Small Installation

## WIRING AND INSTALLATION CONTRACTORS

### West of Broadway and Fifth Avenue

Amsterdam Ave 452—C A Christesen  
 Amsterdam Ave 648—H Blumstetter  
 Broadway 237—Electric Cons & Supply Co  
 Broadway 335—Park Sullinger  
 Broadway 379—J S Bihin  
 Broadway 593—E W Hirsch  
 Broadway 725—L F Benn  
 Broadway 1170—The Chas L Eidlitz Co  
 Broadway 1265—S W Electric Co  
 Broadway 2382—H S Beidleman  
 Broadway 2742—H Reinwald Jr  
 Church St 50—L K Comstock & Co  
 Columbus Ave 220—T F Carr & Co  
 Columbus Ave 330—C T Pinkham & Co  
 Columbus Ave 549—Hoffman & Elias  
 Cortlandt St 26—Cleveland & Ryan  
 Cortlandt St 39—Blackall & Baldwin  
 Cortlandt St 39—Berg & Co  
 Cortlandt St 84—Bleyle Elec Co  
 Duane St 172—Jas F Hughes Co  
 Eighth Ave 2710—Franklin Elec Co  
 Eighth Ave 2527½—M Kohosoff  
 Fifth Ave 65—L A Whitney  
 Fifth Ave 75—H M Walter  
 Fifth Ave 503—Flucker & Keedwell  
 Fifth Ave 571-573—Hatzel & Buehler  
 Greenwich St 183—Thomas & Johnson  
 Greenwich St 207—F A Frey  
 Greenwich St 255—F C Ross  
 Hudson St 600—Edw S Eaton  
 Sixth Ave 110—J V Johnson  
 Sixth Ave 617—Zenker & Siems  
 Sixth Ave 780—C C Bohn Electric Co  
 Sixth Ave 873—John W Flint  
 Seventh Ave 192—Emil Christensen  
 Seventh Ave 727—Conduit Wiring Co  
 Thames St 27—Watson Flagg Eng Co  
 Thames St 27—McLeod Ward & Co  
 Warren St 73—J P Hall  
 Warren St 90—Wm F Duffy  
 Warren St 90—Independence Electric Co  
 West St 116—Knickerbocker Electric Co  
 West St 463—Western Elec Co  
 West Broadway 430—Jas H. Roberts  
 West 17th St 150—Harry A Hanft  
 West 21st St 35—W J McClure & Co  
 West 26th St 54—Louis Freund  
 West 27th St 20—Payne Hayden Co  
 West 28th St 11—Thos L Dillon  
 West 29th St 15—Dennis G Brussel  
 West 30th St 110—Tucker Elec Con Co  
 West 33d St 209—E J Elec Installation Co  
 West 34th St 45—Peet & Powers  
 West 38th St 72—A J Buschman Co  
 West 42d St 25—Russell Electrical Co  
 West 42d St 29-33—Germond & Turner  
 West 42d St 112—Oberg Blumberg & Bleyer  
 West 45th St 100—F A Bohling  
 West 49th St 422—Frank Fisch  
 West 61st St 120—J L Moriarty  
 West 72d St 170—T J Kaufman & Co  
 West 111th St 147—Mariposa Electric Co  
 West 110th St 227—Lewis S Davis  
 West 135th St 114—Nathan Zolinsky

### East of Broadway and Fifth Avenue

Beekman St 1—Elec Motor Insp & Rep Co  
 Beekman St 74—Jordan Bros Inc  
 Broome St 105—B H Weinberg  
 Cedar St 10—Wm Truswell & Son  
 Dover St 8—E W Hazazer

East 7th St 138—H A Schreiber  
 East 9th St 65—George D Beinert  
 East 9th St 51—B W Sandbach & Co  
 East 22d St 27—Hunt & Morgan  
 East 22d St 113—J Livingston & Co Inc  
 East 23d St 10—Porsch Elec Co  
 East 23d St 42—Kimball Elec Construc Co  
 East 23d St 145—Bateman & Miller  
 East 25th St 122—Isador Fajans  
 East 28th St 114—Burkart Elec Co  
 East 30th St 13—Geo H Shuman  
 East 37th St 207—Reis & O'Donovan  
 East 42d St 39—Edwards Elec Con Co  
 East 42d St 45—Cowden & DeYoung Inc  
 East 55th St 147—Morris Levi & Co  
 East 57th St 426—Behlert Elec Co  
 East 59th St 57—Stanley & Ruth  
 East 72d St 167—E J Dushman  
 East 77th St 440—Edw Zenker  
 East 80th St 204—J E Woelfle  
 East 125th St 13—L L Strauss  
 East 125th St 31—Leo S Stern  
 East 125th St 77—Peter Jansen  
 Frankfort St 26-30—J F Bidstrup & Co  
 Fulton St 44—E Klein & Bro  
 Fulton St 90-98—Fulton Electric Co  
 Gold St 29—Mfrs & Inventors Elec Co  
 Gold St 82—Naumer Elec Co  
 Grand St 209—Nathan Klein Co  
 Grand St 235—Joseph Waintrob  
 Great Jones St 38—Geo Weber & Bro  
 John St 52—Alfred Whiteley  
 Liberty St 120—Edward B Stott & Co  
 Liberty St 123—G Curt Kastner  
 Liberty St 126—S Arthur Brown  
 Madison Ave 314—Nimis & Nimis  
 Madison Ave 1122—F W Cohn  
 Park Ave 103—Stehlin-Miller-Henes Co  
 Park Ave 1030—Guarantee Electric Co  
 Park Ave 1055—Blackman & Guttman  
 Pearl St 50—Oswald Elec & Eng Co  
 Third Ave 221—Maurice Young  
 Third Ave 670—Silverman Bros  
 Third Ave 1800—Parker & Cooley  
 Third Ave 2307—Rappaport Electric Co  
 Wall St 2—Edwin C Gee  
 Wall St 71—Fleck Co M F  
 Wall St 90—Chas Davidson

### Bronx

Baker & Fox—313 E 141st St  
 Bogan Irving A—4192 Park Ave  
 Evans & Kaestner—893 Intervale Ave  
 Hinners F J Jr—585 East 135th St  
 Israel & Co—450 East 148th St  
 Kips John & Co—161st St and 3d Ave  
 Kirschoff C Arthur—584 East 163d St  
 Landy Jacob—673 Elton Ave  
 Mangam H I & Co—333 East 162d St  
 Ross E L—356 East 138th St  
 Schwarzler & Co—460 E 167th St  
 Vielberth Jos F—1243 Taylor Ave  
 Wienecke Louis—901 E 165th St  
 Woods Lewis H—2355 Jerome Ave

### Yonkers

Excelsior Gas & Elec Fixture Co—42 Warbur-  
 ton Ave  
 Imrie & Underhill—Bronxville N Y  
 Intervale Electric Co—12 N Broadway  
 Nugent A W Co Inc—5 Dock St  
 Seaboard Elec Co—12 N Broadway  
 Westchester Elec Equip Co—34 N B'way

# The Edison Monthly

January

1911

## C O N T E N T S

VOLUME III

NUMBER 8

	Page
Editorial - - - - -	218
Lighting of Automobile Salesrooms - -	220
The Automobile Club Annex - -	223
National Electric Lamp Association Bulletin -	225
Street Illumination in Harlem - -	226
Inverted Lighting for Offices - - -	228
Private Plant Abandoned in a Wall Street Building - - - - -	230
Motor Driven Machines - - - -	233
Recent Electric Vehicle Achievements -	236
Cost of Operating Electrics - - -	238
Electrics at the Automobile Show - -	239
An Electrically Driven Ribbon Factory -	240
Another Suspended Motor - - -	241
Apartment House Improvements - -	242
Emergency Call for Electric Flatirons -	243
Electricity as a Social Leveler - -	244
The Electric Curling Iron - - -	245
Business Invasion of Greenwich Village -	246

Copyright 1911, by The New York Edison Company

# Editorial

## *The Edison Monthly*

Published by

## *The New York Edison Company*

General Offices

55 Duane Street New York City

President

MR ANTHONY N BRADY, 54 Wall Street

Treasurer

MR JOSEPH WILLIAMS, 55 Duane Street

Secretary

MR LEWIS B GAWTRY, 4 Irving Place

The lesson of a recent factory fire, in which two score of employees were killed, is the use of electricity for light and power in workrooms. The official investigation of the catastrophe has exonerated both owners and lessees, and from the evidence presented, there was no extraordinary element in the situation. The great fatality was due to panic following the explosion of gasoline, used for an engine, in an oil-soaked wooden building, which was legally if not plentifully supplied with exits.

Although the details may vary, here are all the customary ingredients which have contributed to catastrophes on land and sea, far and near, since history has recorded them. There is generally some foundation of callousness or ignorance, on the part of owners, unsatisfactory legislation, not very efficient execution and, to fill the measure, that ungovernable element in any crisis, the paralyzing fear that seizing on entrapped animals, causes them to throw away their chances of escape.

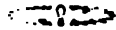
It will be many generations before complete enlightenment will do away with interested ignorance, mediocre legislation or ineffective administration, but even with these imperfect conditions, such fearful fatality need not have occurred had electricity been the motive power in this building. Only by the explosion of an intensely inflammable liquid could the spread of fire have been so rapid that the poor construction of the fire-escapes could have produced such fearful carnage. It was this very nature of the flame that was largely responsible for the panic.

Panic is the unknown quantity for the management of which no rules can be presented. But if pre-vision cannot be made for dealing with mob-fear, it is possible to provide working conditions in which panics are least likely to occur. This is one of the services which electricity has yet to perform for American industry, as it has already done, to a great extent, for European. Until electricity revolutionized the mechanism of the theatre, periodic holocausts seemed inevitable. Now, however, through the agency of electricity, they have almost vanished from history and the same revolution can be wrought in our factories.

In the millenium doubtless no one will put his brother man to work in conditions which he would



not accept for himself. Unfortunately, this happy time is not yet, and there seems to be little danger of its arrival in the very near future, however much we might desire it. For plain business dealing, then, what should be expected of the employer as a "practical man," and what has the worker a right to expect? Not a Utopian commonwealth, but the average condition of the good shop in any trade.



The first-class shop, however, is coming more and more to mean an electrically driven one. In Manhattan there are two splendid trade schools now maintained by the city. In both of these the pupils, boys and girls alike, are taught to operate electrically driven machinery exclusively.

Now the object of these schools is to train the students to become skilled workers, commanding the highest market rates; to have their graduates enter trades where the best shop conditions prevail. By training them to operate electrically driven machines, these trade specialists declare their conviction that electric motor-power prevails not only now in the high-grade factories where they wish to place their boys and girls, but that in the future it will prevail still more widely.



An interesting comment on the benefit of electricity to the worker comes from the recent installation of electric irons in a factory where the operators were immigrant girls. They viewed the new equipment with superstitious dread, the heating by current seeming to them "black

magic." The agent was unable to explain away their fears, since they spoke no English. He went away feeling that the experimental installation in this instance was doomed to failure. What was his surprise two weeks later to receive a permanent order. The mystery was explained. One girl, more curious than the rest, tried the iron, and found that nothing dreadful happened. At the end of the week she had earned \$2 more on piece work than any one else. No further demonstration was needed.



Another phase in which electricity is doing its work of prevention is that of the Christmas tree lighting. This year the daily papers recorded no list of fires started by the falling of a Christmas tree, with its lighted candles.

This sort of accident used to occur most frequently in the case of large Sunday School or institutional celebrations, and the Sunday School festivals of ten years ago come back vividly to the mind of the writer. On the platform the immense tree, none too firm upon its base, covered with inflammable tinsel and cotton-batting snow. Nearby stood the minister, the superintendent, sexton and several vestrymen, all ready with pails of water. In the front were hundreds of little children in light clothes, and somewhere in the rear their anxious parents, speculating on the stability of the tree.

We are growing wiser now, and in no more striking way is it shown than the promptness of churches to order the electric Christmas sets for their festivals.

## Lighting of Automobile Salesrooms

THE opening of the annual automobile show brings sharply to mind one of the most startling of business phenomena, the sudden rise and growth of the automobile industry within the last decade. Ten years ago, there were 3,500 motor cars in the entire United States, and then that was regarded as a notable

number. To-day there are more than 450,000. People refer casually to the "enormous sums" invested in this industry, but few of these same speakers realize that the 200 factories engaged in motor car making represent a capital of \$275,000,000.

While the factory necessarily comes before the product, it should not be



Broadway, Night View of the Automobile Salesroom District. A touch of the Edison system

forgotten that the industry is equally dependent upon the salesmen for its growth. The selling of motor cars is an art in itself, but there can be no more important asset in this particular business than the proper lighting of the automobile salesrooms. While the accepted theory for all commercial lighting is that pleasing and attractive illumination draws attention, creates interest and stimulates buying,

noticed the results as registered in an increase of sales.

"We do not regard this showroom lighting as theory," was the statement made by the manager of the Buick salesroom at Fifty-fifth Street and Broadway. "We know that it is a fact from the number of sales we have made in the evening while the lights have been turned on. Lighting is probably more necessary for automo-



Buick Motor Car Company, Interior. An example of perfect illumination

in the case of automobile showrooms this matter has passed the point of mere speculation.

Within the last few weeks this has been demonstrated beyond any shadow of doubt. For although it is only recently that illuminating systems, specially designed to meet their needs, were arranged for the Buick car company, this concern has already

bile display than for any other business. In the evening, people riding down Broadway to dinner or to the theatre cannot help but notice this place and know that we are here. That is the beginning; then they see something that interests them and come in, where the proper lighting of the cars is of great advantage to the salesmen."





Exterior of the Buick Showroom, an Example of Tungsten Lighting

The lighting of the Buick rooms illustrates the proper combination of brilliancy required to attract attention to the scientific distribution, so that the interest is held on the object upon which the light is thrown rather than distracted by the glare. This large salesroom is located on the uptown corner of Fifty-fifth Street and Broadway, so that its large windows, lighted by Tungsten lamps, form a spectacle that instantly draws attention. Within the room, however, the illumination is well distributed. The lamps are placed in individual recesses in the ceiling, making a soft and pleasing effect.

The importance of automobile showroom lighting has not escaped newspaper comment. In the *New York Sun* of December 5th appears the following observation:

"Automobile dealers of course are trying to compel attention when they leave a showroom well lighted at night, but most of them do not realize, probably, just how great an attraction automobile row is at night. A car

seen by the best possible light effects has all its lines softened and becomes much less a piece of machinery. The harsh details are eliminated and the automobile looks all the better for being seen in an artificial light. Those dealers who do not illuminate their salesrooms at night suffer rather by comparison. Where there is a particularly well-lighted and attractive place next door to one which has just enough lights to help the policeman on his visit of inspection, the contrast is distinctly unfavorable to the gloomier room.

"There are about eighty dealers in the city and most of them are along Broadway—roughly somewhere from Forty-second Street to Seventy-ninth Street. Of these perhaps not more than fifteen have their salesrooms well lighted at night. Two or three places are particularly fine, looking more like parlors than salesrooms, and although the expense of maintaining them may be great, especially the night expense, it appears to most folks to be worth while."

## The Automobile Club Annex

**R**EADERS of the *Edison MONTHLY* will be interested to see the pictures of the new annex to the Automobile Club of America, recently completed, at 244 West Fifty-fifth Street, directly in the rear of the original club building, which faces on Fifty-fourth Street. As it happens, the annex of the Automobile Club will be larger than the first structure, which faces on Fifty-fourth Street. The two together will form the largest and most complete garage anywhere in this country, and it will compare favorably with anything of its kind in Europe. The combined garage room of both portions will house 600 cars. The first two floors of the ten-story building are devoted to the office and club rooms, while the machines are stored on the floors

above, the machine shop for repairing being at the top of the building.

A unique appliance has been added to the already large electrical equipment of the Annex. These are the "wash-pave reflectors," so called, on the fourth floor of the Fifty-fifth Street building, the first instance of their installation in this country, according to the electrician in charge, representing the Watson & Flagg Company.

The wash-paves in question are equipped with a set of electric reflectors to be used in cleaning the cars. Practically all washing and polishing of automobiles is done at night, which makes it extremely necessary that there should be a strong light so that imperfections will not escape the notice of the washer to become patent



Billiard Room, Automobile Club Annex



## The Edison Monthly

when the car is taken out into the light of day. On the fourth floor there is a space approximately forty by twenty feet set apart for this cleaning process. This is marked off on the ceiling by girders, and an additional beam divides the section into two parts, each large enough for one car. On these girders strong electric reflectors will be placed so that the light is thrown and concen-

flows when the washer bears his weight upon the nozzle, and which shut off the instant that pressure is removed. In this way no time is lost in turning off and on the water, and yet none of it can be wasted, since it cannot be flowing except when the hand of the cleaner is on the nozzle. A drain in the center of each washing section carries off the waste.



Dining Room, Automobile Club Annex

trated on the machine. Reflectors on the surrounding beams cast the light in, while on the dividing girder there will be a double set, completing the fourth side of either oblong. It is impossible, however, to secure photographs of this interesting arrangement since the presence of gasoline forbids the use of flash-light chemicals.

From the ceiling also are suspended automatic hoses, from which the water

Across from the new annex of the Automobile Club is the other building, where the usual facilities for cleaning prevail, so that a visitor can easily compare the methods and note the superiority of the more modern arrangement. In this older portion a similar space is marked off for cleaning, but the girders are provided only with high candle-power electric bulbs. Here the light, though strong, is scat-

tered, not a small part of it being wasted upon the ceiling, instead of being directed down upon the object for which the light is needed. The electric equipment of the new building includes several elevators, power for polishing for the machines in the repair shop, compressed air for pumping tires, while the structure is piped for suction cleaning throughout. The an-

engineering activities of that body.

The bulletins issued report on the work of many branches, representing in all the work of two hundred trained men. The department of chemical research tests raw materials used in lamp-making while filament research is the specialty of another group.

Specialists are sent out from the illuminating engineering department



Library, Automobile Club Annex

nex was built by the Hedden Construction Company.

## National Electric Lamp Association Bulletin

**A**MONG the most interesting of this month's exchanges is an engineering department bulletin, published by the National Electric Lamp Association, describing the

to central stations to promote correct and economical lighting installations. By means of bulletins, articles, lectures and exhibitions, the association "endeavors to assist the practical man in his work." A most recent development is the department of physical research, where the scope has been enlarged to include the effect of lighting on the human system, particularly the causes and results of "glare."



## Street Illumination in Harlem

IT is a characteristic of people in general, and Americans in particular, to reform by streaks. One year, we announce our intention of beheading the Octopus, generally succeeding, however, merely in treading on its tail, while the next we reform our spelling,

Square neighborhood, and to improve conditions in Thirty-fourth Street. The remodeling of street architecture is necessarily a matter of years, involving great expenditure, but the defects of our street lighting are patent to all observers, and comparatively easy to



125th Street, Looking East. Taken at a special demonstration of merchants' street lighting

only in a few months to turn our enthusiasm to conservation. All of which is merely a prelude to the fact that this year, after a lapse of many seasons, New Yorkers have taken up again the improvement of the city's main thoroughfares.

Almost simultaneously, societies have been organized to better Forty-second Street, to beautify Fifth Avenue, and to supervise its lighting, to regulate advertising in the Times

remedy. Accordingly, the first efforts of these civic bodies has been in this direction. Already tangible results have been secured both in this city and its neighbor, Yonkers, where, beginning on December 3d, the local Merchants' Association has provided for the illumination of a section of the main business district.

In Manhattan noteworthy progress has already been made as far uptown as Harlem, where the Board of Com-

merce is responsible for a plan for the improved lighting of 125th Street. This scheme had been discussed from time to time for several seasons, yet nothing definite had resulted until recently, when the Harlem Board of Commerce appointed a committee to take action on it.

A little work on the part of the committee members revealed the fact that while many of the business men

was then secured, and a demonstration of the different types of street lighting was arranged.

This took place on November 30th, the entire block between Fifth and Madison Avenues on 125th Street being employed in the sample illumination. Invitations were sent to all the merchants and property owners in the vicinity to attend, and the Harlem Branch Office of the Edison Company



125th Street Illumination, Looking West. The fourth line of the Edison sign, being in red, can be seen only faintly

were in favor of increased illumination, none of them had concrete notions of exactly what was wanted.

It was therefore decided that a demonstration of what could be done in the way of street lighting was needed, so that the property owners could decide upon the amount and kind of illumination desired, before involving themselves in any great expense. Cooperation with the city officials and with The New York Edison Company

was made a headquarters of information. Six different kinds of arc lighting were demonstrated, and Edison men in attendance explained to all questioners the advantages of each. From time to time, the lights were shut off, so that the visitors could compare the illumination supplied by the city with the various other lighting arrangements shown. Automobiles were at hand, so that groups of interested individuals could be taken



## The Edison Monthly

off several blocks to view the effects from a distance.

The result of this demonstration was favorable to a marked degree. As a result, the Board of Commerce decided to carry out the street lighting proposal while the merchants of several blocks have expressed their willingness to pay any assessment voted for that end.

Investigation of the lighting of Market Street, in Newark, brought some extremely good suggestions which will probably be followed with some modifications along 125th Street. In Newark the merchants of Market Street formed themselves into a permanent association, which they then had incorporated. This organization then made contracts with the individual storekeepers and business men along the thoroughfare. The terms

are not more than \$4.50 a year for every foot of frontage, and in many cases the property owner and the lessee have shared the expense.

It is practically settled that for 125th Street a form of twin-lamp white carbon lighting will be adopted, the posts to be placed 140 feet apart, the lighting to cost approximately \$3.50 a year for every foot of frontage.

### Inverted Lighting for Offices

IN the palmy days of journalism, which carping critics of present-day newspaper enterprise place about thirty-five years ago, when reporters told nothing but the extremely dignified truth, and the "scare" headline was unknown, a certain country journal of light and leading throughout New England, augmented its few flickering gas jets by an occasional lamp. As a result, most of the leading newspaper men of to-day who served their apprenticeship in this atmosphere of spiritual light and material gloom, are now struggling along with badly impaired eyesight.

Since these good old days,



Combination of Direct and Inverted Lighting in Banking Office



however, theories of owners and employers have been revolutionized. It is now regarded as good management to provide ample facilities for the performance of any kind of work. In no other way is this change of front more clearly shown than in the improved office lighting now general throughout New York City. Especially is this true of such businesses as require close application of eyesight, such as accounting, draughting, printing, writing and statistics making.

The proper illumination of these workrooms has become a distinct field in itself. One of the systems designed to meet these conditions is inverted arc lighting, of which two illustrations are shown here. The bright light from an arc lamp burning 550 volts is thrown directly upward, so that it is diffused on the working plane below, giving

clear, almost shadowless white light, free from glare. The illustration here shows one example of inverted lighting alone as used in a large insurance office, where men are constantly working over colored maps, with the small detailed writings which accompany insurance data. The other instance is of a combination of direct and inverted lighting as arranged for a banking office. With the even distribution of light

throughout the room, by use of the inverted arc, it is not necessary to furnish individual desks for the clerical force, while the direct illumination adds warmth to the effect. The type of inverted light shown here is that of the Törring Company, of Philadelphia, Pennsylvania.

The other day, on Twenty-ninth Street, passersby were favored with the sight of a five-ton electric truck towing in a disabled ten-ton gasoline power wagon. Both of these vehicles belonged to one of the large department stores of this city, which has recently given an order for a dozen more electrics. Some people might see in this the subtle working of the law of cause and effect.



Insurance Office, Lighted by the Törring Inverted Arc

## Private Plant Abandoned in a Wall Street Building

THE Ward Line Building, situated at 90-96 Wall Street, is a modern high-class office building occupied by exporters and importers of coffees and spices, doing a business mostly with South American countries. The structure is typical of New York office buildings and the electric installation consists of 3,000 incandescent lamps, three elevators and an electric heating equipment for coffee roasting. Until recently electricity was supplied to the building by an electric plant located in the basement.

If there was ever a question as to whether or not it was economically advantageous to manufacture electricity in an office building rather than to purchase it from a street service, that question has been removed by the discovery and application of Tungsten to the incandescent lamp. The Tungsten lamp has reduced the cost of electric lighting fifty per cent. For example, an office building formerly con-

suming 200,000 K W H per annum now consumes through the medium of the Tungsten only 100,000 K W H per



The Ward Line Building, 90-92 Wall Street

annum. A corresponding reduction in the cost of electricity for lighting is realized when current is purchased on the meter basis. On the other hand, when current is manufactured in the building, a saving is realized only by the amount of coal burned, which is almost inappreciable; the labor and all other charges remain the same.

As to the comparative cost of supplying electricity to an office building from an isolated plant or from a central station, this cannot be finally determined by figures. The ultimate answer to this question must be by actual demonstration. Such a test has been made at the Ward Line Building for six months. The building has been supplied with the Edison Service, a record having been kept as to the cost of light, heat and power, so that a comparison could be made with the corresponding service formerly supplied from the building plant. The result has been that a permanent agreement has been made because a saving was shown to the owner of several thousand dollars a year.

The actual saving in operating expenses is not the only advantage which has been proven by this experiment. The owner has increased the value of the

offices by the improved lighting and elevator service now furnished the tenants. The space formerly occupied by the plant has become available for renting purposes. The Edison Company's service is now continuous during the twenty-four hours of every day in the year.

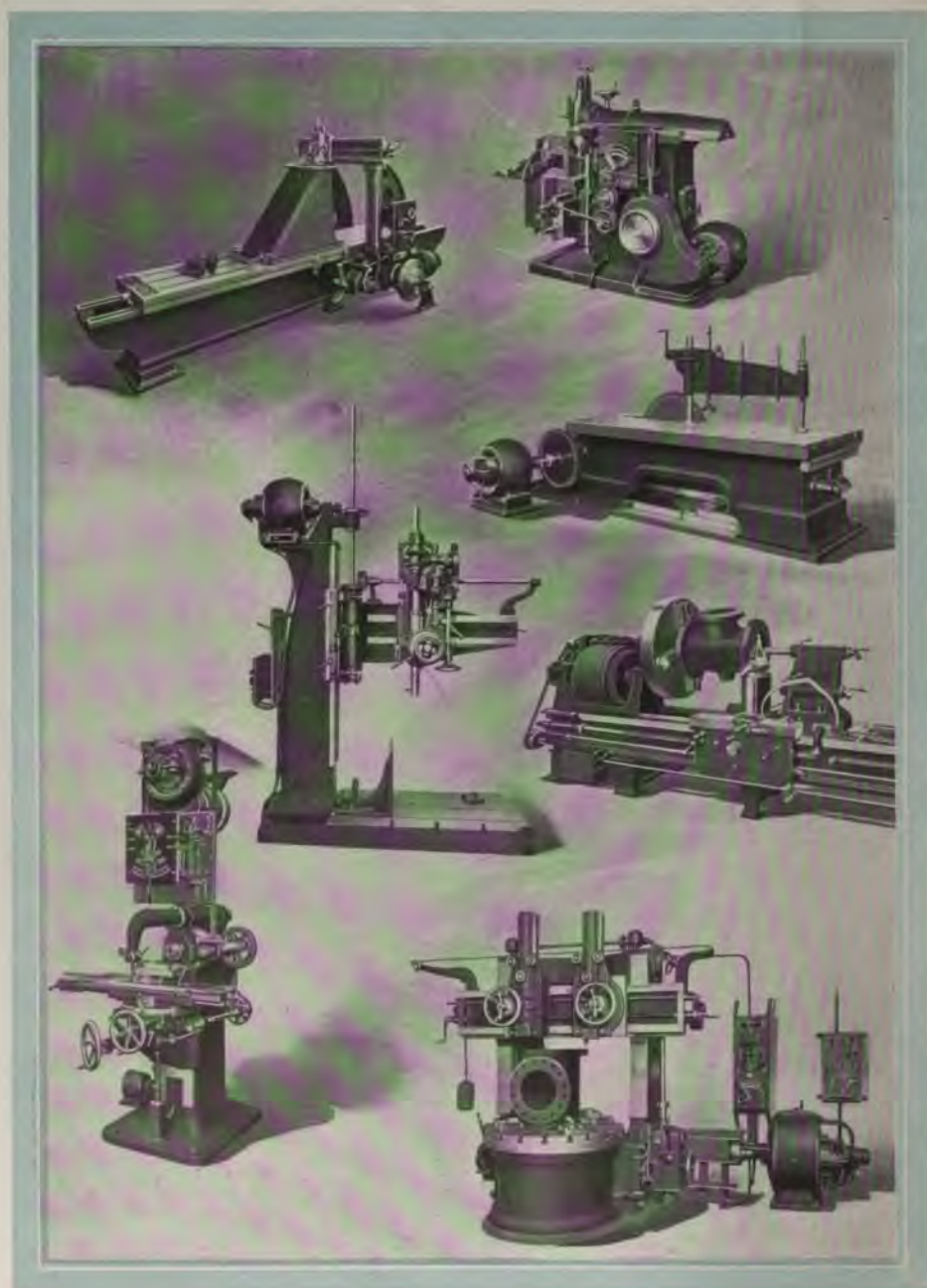
There is a smoothness and steadiness of lighting which was not possible with a rough, complex and noisy plant in the building. Furthermore, coal is now burned in the building only during the winter months, as it is only necessary to generate sufficient steam for heating purposes.

What building owner would not prefer to throw a switch to connect his building to the largest electric supply plant in the world than to be dependent upon a steam-driven generating plant, subject to fluctuations and breakdowns, especially when such electric service can be had at less expense than private plant service?



Portion of the Abandoned Plant, Ward Line Building





Group of Motor-Driven Machine Tools

# Motor Driven Machines

**T**HE application of the individual motor drive has reached a higher degree of development in the machine shop than in any other industry. Introduced first for the operation of the traveling crane, recognition of its importance has increased rapidly, and in modern shops it has entirely superseded the older form of power transmission through the medium of shafting and belting.

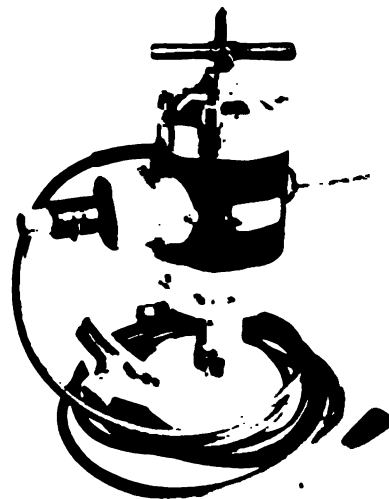
One of the chief reasons for the growing popularity of the individual motor drive is the refinement in speed control made possible by the direct-connected electric motor. With the belt and shaft drive, the speed changes were accomplished in coarse gradations by gearing and use of the "step-pulley." With field control, however, the speed of the motor may be adjusted to the exact degree desired for the work at hand. Not only this, but it may be varied throughout the operation, thus increasing markedly the output of the machine.

The flexibility of an electric drive has also proved an important factor in its development. In the shop so equipped, a single machine or a group of machines may be operated irrespective of conditions in other parts of the room. Thus, by using Central Station current, overtime work may be carried on most economically. With all other methods, however, it is necessary to keep up the entire plant in order that the work of a few machines may be carried on after hours. These

qualities of flexibility are referred to when a practical machinist calls electrically driven tools the "handiest."

When the electrical machinery is operated by Central Station service, other advantages also appear: among these are the absence of a dangerous high-pressure boiler plant; the ease with which extensions to the shop can be made without disturbing the existing equipment; the saving of space and the possibility of locating machines to secure a logical sequence of operation and to lessen the degree of risk for the employees.

The pictures shown here present several of the electrically driven machines most popular in metal and



New York Electric Tool Company  
No. 3 D C Drill



## The Edison Monthly

wood-working shops. In the upper left-hand corner of the group picture is a twelve-foot bed planer, used for straightening the surfaces of iron and steel. A still more highly developed type of this machine has been lately introduced into the repair shop of The New York Edison Company.

Beside this is an eighteenth-inch

shifting the metal. In the lower left-hand corner is a "universal" milling machine, used for cutting reamers, gears and sprockets, while to the right of the radial drill is a double-spindle, seven-horse-power, back geared, screw-cutting lathe. In the lower right-hand corner is seen a fifteen-horse-power boring mill.



New York Electric Tool Company, Center Grinder

"shaper," used where the metal surfaces present irregular shapes and difficult angles. The power saw below is generally called a cold saw, since it can cut through twenty-four inches of unheated iron.

The three-horse-power radial drill here pictured is used to drill holes in any part of the piece of work, within a forty-eight-inch radius, without

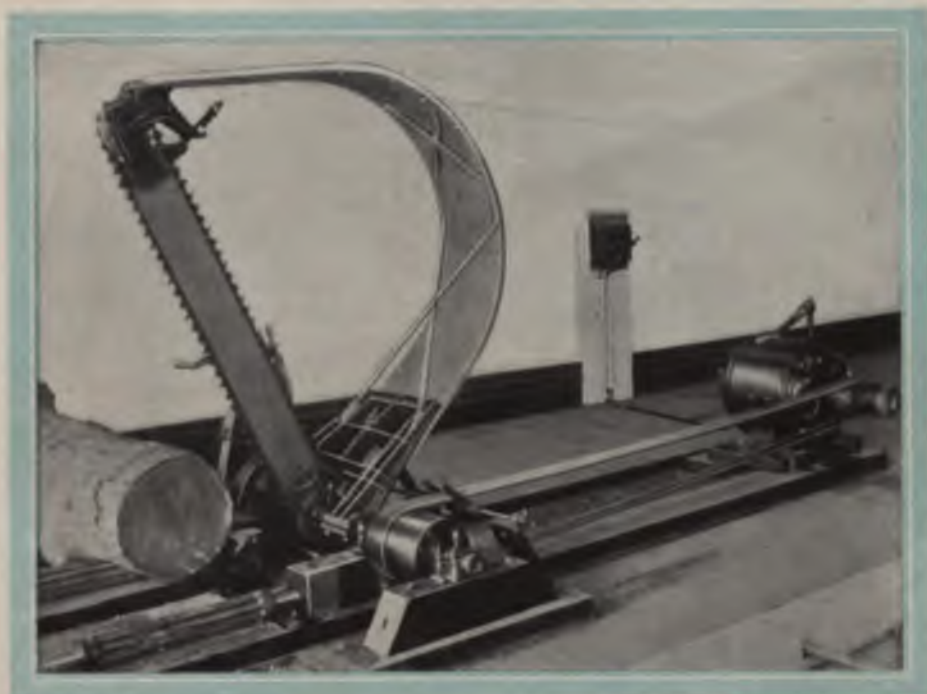
series motors, designed to stand the abuse and careless handling they are sure to get. The frame is a cylindrical, crucible steel shell, thoroughly annealed, so as to give it the maximum permeability. The armature is built of the softest steel laminations obtainable, which are insulated with a coating of special japan, and mounted on a hollow steel shaft. The

The illustrations on pages 233-234 show two of the tools made by the New York Electric Tool Company, of 136 Liberty Street, New York City.

The number three-A (or number four) is designed for direct current only and is of the following construction: The motors are four-pole, form-wound,

coils are form wound, and, therefore, interchangeable and are made of silk-covered wire properly taped with silk, and after dipping in oil and moisture-proof compound are thoroughly baked. The commutator is of very large diameter thus insuring long life while sparking is greatly reduced by oiling several bars for each slot of the arma-

The combined bench and tool-post grinder, shown on page 234, is a very light and handy combination tool. Its weight is eight pounds and, with its three-and-one-half by one-fourth-inch wheel running at 6,000 revolutions per minute, it is well adapted to such work as grinding lathe centers. The off-center shaft feature of this



Endless Saw for Wood-Working

ture. A ball-bearing fan is mounted on the shaft. The entire thrust of the working load is carried on a thrust ball bearing which is distributed through the front head and frame to the screw feed or breast plate on the rear head; thus none of the load is carried on the rotating parts. The gears, so balanced as to minimize side thrust, are made of special gear steel and phosphor bronze.

machine allows it to be brought very close to the work, adding to the life of the grinding wheels. The tapered and split phosphor bronze bearing bushing allows adjustments for wear, and prevents chattering. A very efficient means is provided for excluding dust from the bearings, and the position of the oil cups is such that the shaft bearings are thoroughly lubricated in any position of the machine.



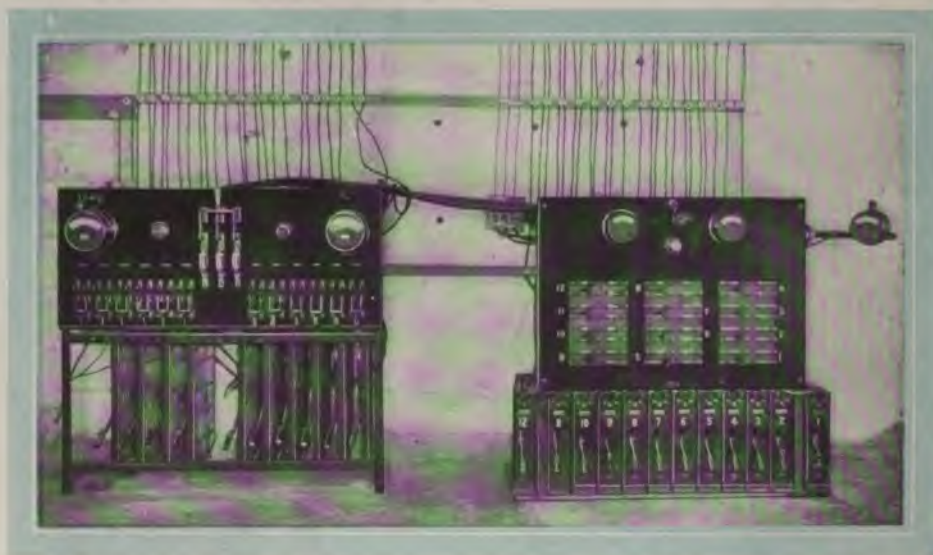
## Recent Electric Vehicle Achievements

THE recent showing made by both electric pleasure and commercial cars, while causing a feeling of surprise among the laity, no more than fulfills the prophecies of the advocates of electric vehicles.

On November 9th, at Cleveland,

with heavy winds blowing. This 244.5 mile journey on one battery charge is the banner long-distance achievement of electric pleasure vehicles.

Although it is often stated that no brief contest can determine the comparative merits of vehicles of any class



Charging Board, Acme Garage, 410-416 East Thirty-second Street

Ohio, a Detroit electric, equipped with an Edison battery, and carrying C G Steinhauer, of the *Cleveland Leader*, as observer, made a run of 244.5 miles on a single charge of the batteries, in a total running time of nineteen hours and twenty minutes, an average of twelve and sixty-five hundredths miles an hour. This remarkable record was obtained in spite of the fact that the trip was made in rainy weather, over slippery roads and

or make or give a thoroughly satisfactory indication of the actual costs of operation, still in the recent contest organized by the *New York American*, the ease with which the motor vehicles, gasoline and electric alike, were handled, the distance they covered and the time they made proves beyond a doubt their superiority over horse-drawn vehicles.

This, to many, wonderful demonstration of the capabilities of the motor

truck was given in New York City and the surrounding country. It was not a speed contest, but designed to be an actual test of commercial vehicles under ordinary trade conditions. In order to do this and to conform to the laws of the City of New York a rather

low rate of speed was set. Forty-nine heavily loaded motor-driven vehicles ran through streets where traffic is thickest and over rough Westchester and Long Island roads. The vehicles were separated into two general groups. A transfer division for long hauls, covering about sixty-five miles

a day, included vehicles such as might be used to haul goods some distance from a factory in the suburbs to the warehouse in the city. This section was mostly made up of gasoline cars while the distributing division consisted largely of electric vehicles. These cars carried less than rated

loads and covered from thirty-five to forty-five miles a day with from ten to 100 stops each. This last represented the merchant or manufacturer who has a delivery service.

From the official records it appears that twenty-seven



**Detroit Electric, in which Recent 240 Mile Run was Made**



**A General Vehicle Truck. General Vehicle trucks took five prizes in "American" Endurance Run**

## The Edison Monthly

vehicles had perfect scores. Many of the cars were penalized for technical violations of the rules which in no way reflected on their business usefulness.

### Cost of Operating Electrics

ONLY six of the power-wagons reported mechanical troubles. The lowest cost of any gas car was that of the Kelly working at eighty-six one-hundredths of a cent

rent at four cents per kilowatt hour.

The results seem to support the contention of the manufacturer of electric vehicles that the personal ability of the driver counts to a much less extent in economical handling of electrics than it does with gasoline cars. For example, four General Vehicle trucks were all operated at less cost than any gas truck, and varied only about eighteen per cent.



Detroit Electric Pleasure Vehicle Climbing Hill on 145th Street up from the Banks of the Hudson. The Viaduct, the Hudson, and the Palisades are in the background

a mile; the lowest of the electrics, a five-ton general vehicle truck, at forty one-hundredths of a cent a mile. In every case but one the lowest gas performance is greater than the highest electric.

On an average the gasoline cost is about forty-six per cent higher than the electric, gasoline being reckoned at fifteen cents, oil at fifty cents, and cur-

Furthermore, all the electrics, of every make, varied not more than thirty-eight per cent in any class, while the corresponding figure for the gasoline trucks was 214 per cent.

To sum up, this recent run demonstrated to the general public the cheapness, efficiency and speed of the power-wagon over the horse-drawn. The entire efficiency of the electric vehicle



for medium-length hauls involving many stops, which represents ninety per cent of city trucking, was practically proved beyond question. As a result, one is lead to believe that the "horseless age," at least for city business, is very close at hand.

## Electrics at the Automobile Show

**T**HE display of electrics at the coming Automobile Show is going to be reserved for the second of the two weeks during which the Show will take place. This division is to avoid the crowding which took place at the previous year's exhibit. Electric vehicles, both commercial and pleasure, will be seen from January 16th to 21st, the display being planned to include the entries of ten different firms.

Probably the most striking feature for the casual visitor will be the greatly increased mileage of the different pleasure vehicles as a result of improvements in battery-making. An elaborate equipment of maps and charts showing these test trips will be on view.

Several interesting types will be shown among the commercial vehicles. The General Vehicle Company will exhibit its new 700-pound delivery

wagon model. At the convention of the Electric Vehicle Association in October, Central Station men declared that such a small, light electric would fill a long-felt want, and this type developed by the General Vehicle Company is the first response to this suggestion.

The Studebaker Company will have on hand what they consider the largest and strongest truck made, while the Pittsburgh Motor Vehicle Company



Trucking, Old Style and New

will display two 1,000-pound wagons, with steel bodies.

The list of entrants in this year's show is: The Anderson Carriage Company, the General Vehicle Company, the Lansden Company, the Pittsburg Motor Vehicle Company, the Rauch & Lang Company, the Studebaker Company, the Waverley Company, the Woods Motor Company and the Hupp-Yeats Company.

"Be what you mean to be."—A B Alcott.

## An Electrically Driven Ribbon Factory

FOR many years, Paterson, New Jersey, has been the center of the ribbon manufacturing industry of this country. Recently however, several establishments have been

ceiling. This arrangement frees the floor space from all belting and shafting, so that every square foot can be used to greatest advantage. Furthermore, the absence of any engine near



Arlington Ribbon Factory, Electrically Driven. Note the motors suspended from the ceiling

opened in New York City itself; among these is the Arlington Ribbon Company at 124th Street and First Avenue which has one of the most complete electrical equipments in the country.

The illustration shows several interesting points of the installation, namely the motors suspended from the

the looms serves to keep the work clean, an extremely important point in the making of delicately tinted ribbon.

When the firm moved from Paterson to New York, a few months ago, the plant occupied 10,000 square feet, but arrangements have been made to lease 10,000 square feet additional floor space. All the processes of rib-

bon making, including winding, warping, weaving and finishing are done upon the premises and by means of electrically driven machinery. First, the silk fibres, in large hanks are wound off from spindles upon large spools. There are thirty-eight spindles in each bank, and so nearly automatic is the machinery that seventy-six of these flying "swifts" can be watched and attended to by one operator. The next process is that of warping. In this the threads are passed from a creel to a large warping mill, a circular frame eight yards in circumference. The width of the ribbon to be woven depends upon the number of "ends" passed through the creel, in many instances there being as many as 600 "ends" on a single creel. When the warping mill has

made the necessary number of revolutions to produce any given length of warp, the machine stops automatically. Weaving follows, and in the Arlington factory this is done on fifty of the latest type Brompton and Knowles looms. These vary in size from the smaller ones, where eighteen shuttles are operated at once, to those where forty-four, placed in two banks, are tended by a single operator. "Pick-

ing" precedes the final finishing process. The ribbon, fresh from the looms, is revolved upon shafts before the operator. When any knot or loose end appears upon the surface, a ready scissors clips away the imperfection. The ribbon is then ready to be "finished," which is accomplished by the passing of the ribbon through the heated rollers, or if it should be desired, through the moiré machine.



New Motor and Abandoned Engine, D W Herman, 1932 Madison Avenue  
The motor, hung from the ceiling, saves floor space

## Another Suspended Motor

THE accompanying picture shows a motor used to operate ice-cream freezers, hung from the ceiling. In the foreground is the engine which this motor replaced, and which took up six feet of very much needed floor-space. The little motor, up on the ceiling, does all the work, and is out of the way.

# Apartment House Improvements

THERE never was a time in the history of this country when the demand for the conveniences of life (some people would call them lux-

uries), is as great as it is at present. Doleful philosophers draw gloomy inferences from this state of affairs, while optimistic ones declare that

Americans are merely choosing to devote their time to the things that count, and that the present tendency denotes only a desire to do away with unnecessary and irksome details.

Whatever the interpretation, the facts from which these deductions are drawn stand undisputed. In city life, the demand for convenience is made manifest in the ever increasing popularity of the thoroughly equipped apartment house. A few years ago such a building, provided with a



Wellsmore Apartment House



vacuum cleaner system throughout, would have provoked considerable comment; but already this apparatus has become a matter of course, not only in the so-called "high-class" apartments, but in many where the rents are within the means of the average "comfortable" family. From present indications, in a short while vacuum cleaning will be as much a necessity as electric lighting.

Larger rentals bring more liberal provision for labor-saving devices. Not many months ago an apartment house which boasted itself as the most expensive in Manhattan advertised, as a special attraction, its separate equipment of electric flatirons for every family under its exclusive roof. But so fast does one improvement follow on the heels of another, that shortly afterward another one of the apartment houses, designed for the very wealthy, contracted for a complete electric washing and drying apparatus. This was not for the apartment laundry, but for each individual tenant.

"As things are going now," an old gentleman commented on this matter, "the next generation will have to be fed. They'll be too lazy to do their own eating." Such a calamitous development has not yet come to pass, however, even among the idle rich.

If machine-feeding, as prophesied by this old man, is not yet upon us, still the latest improvement announced is closely related to that, for electric refrigeration appears to be the next step. While this principle has been applied successfully for commercial use, its adaption for domestic purposes is extremely rare. Last month the second instance of this application of electricity was recorded. A large

apartment house now building at the corner of West End Avenue and Eighty-ninth Street has ordered an electrically driven refrigerating apparatus for the service of every future tenant in the apartment. The only other instance in New York City of this kind is an apartment house on Fifth Avenue where similar arrangements were completed a few months ago.

The accompanying picture shows one of the handsome uptown apartments where ample facilities are provided for the residents. The Wells-more, besides using 3,200 incandescent lamps for its lighting, provides electric pumps, elevators and vacuum cleaning for all of the families living there. This apartment house was designed by James & Leo and erected by the Charter Construction Company.

## Emergency Call for Electric Flatirons

ELECTRIC flatirons came to the rescue of a paper-hanger early in December. This man had a contract to have a drawing-room re-decorated by a certain date. But the plasterers had been slow, the walls were still wet, and the contract date was close at hand. The paper-hanger realized that severe heat would have to be applied in order to dry the plaster, and after some debating, decided to try electric irons. Blotting paper was laid upon the walls and the irons then applied. The method proved eminently successful, and the paper-hanger was able to live up to his contract.

A short trial is long enough for the unprepared.



## Electricity as a Social Leveler

TWO years ago, when a house then being built in Brooklyn was equipped with apparatus from garret to cellar that would make possible the performance of every branch of housework by electricity, this was regarded as a whim on the part of the wealthy owners. Developments not only since then, but within the last few months, point unmistakably to the time when, by the use of electricity, drudgery will be a thing of the past, and when any woman, clad in a ball gown, if she so choose, will be able to execute every

household task merely by turning on the switch. This statement is not limited to city dwellers, since by the use of the storage battery it is now possible to provide this same electric service in an isolated suburban home.

While the benefit of such equipment for the woman who does her own work is obvious, the introduction of ample electrical service in the home will have a still more important effect on that vexed question, generally spoken of as "the servant problem." Briefly stated the situation at present is that households cannot get the type

of servants that they want, and do not want the kind they can get. American-born girls and women will not go into domestic service, and prefer instead to accept the smaller wages offered by factory and shop employment. The nations at present making up the great bulk of the immigration either do not or will not "go out to service." In seeking the cause for this situation, some space is generally devoted to a discussion of the relative length of hours and strain of toil involved in industry or housework, yet the most honest of these writers frankly admit that the difficulty is not chiefly



A Popular Electric Device. The chafing dish never explodes

one of work, but of social distinction. The girl who "goes out to service" loses caste.

The question of caste is largely one of appearance: the poorest stenographer is a lady, because in so far as her stipend permits she dresses like a lady. Accordingly she looks down upon the cook drawing the same wages and "keep," because the cook works with red face and streaming hair over a hot stove; although the hours of the cook's day are longer, there is more opportunity for rest; but when the cook has her "day out" she publishes her occupation to the world in her roughened face and heavy hands.

With electricity at work in the home, however, this social inequality will disappear: the girl can do the cooking, the washing or cleaning without loss of caste. She can wear the same dress while guiding the vacuum cleaner that she can in presiding over the glove counter. In fact, the greatest service of electricity in the household has just become apparent—electricity as a social leveler.

## The Electric Curling Iron

**A**MONG this season's holiday novelties appeared the electric curling iron, an appliance already very popular throughout the West, but which the Western manufacturers are placing in New York for the first time this winter. So converted is Chicago to the electric curling iron that in its newest and most exclusive hotel, but recently completed, the management maintains an array of these curling irons, which are sent to the rooms of the guests at their request.

The advantage of this latest device



Electric Curling Iron in Use

for the ordinary user is its lightness, quickness to heat, and consequent small cost of operation. The manufacturer's catch-word is "one-half hour's use for half a cent," and this claim has been verified by the Heating Department of this Company. The statement might have been made a little lower and still be within the bounds of truth. The tester also adds that it takes one half minute to heat.

For the non-professional hair-dresser one of its attractive points is that the current carried is never sufficient to overheat the iron, so that there is no danger of burning the hair. Its popularity among hair-dressers is partly owing to the fact that the tongs are so constructed that all varieties of puff, wave and plain frizzle now in vogue can be accomplished with the one instrument. Accordingly, the hair-dresser, on starting out on his rounds needs take with him only this one light tongs, and not a large assortment of heavy irons.

# Business Invasion Of Greenwich Village

Pioneer Work of the Trinity Corporation

WHILE this last year has added its contribution to the now generally felt uptown trend of business in New York, the northward movement has been influenced by a more recent turn in the current, which promises to be one of the most important of the migrations of the commerce of the great city. This is the westward sweep of manufacturers which is now threatening to

turn Greenwich village into one of the busy marts of trade.

Within the last year, this tendency has been greatly helped by the opening of the tubes under the North River, and the promise of still further transit facilities for the western waterfront. First to appreciate the possibilities of such a digression in the uptown growth have been the astute business managers of the Trinity



One of the New Trinity Buildings, Recently Erected at Charlton and Hudson Streets, Equipped with Edison Service for Light and Power

Church Corporation property, who within the past twelve months have condemned a large amount of their former tenement property, and have erected, or are now building, no less than nine large "loft buildings," so-called, in the midst of what was, less than a year ago, chiefly a residential section.

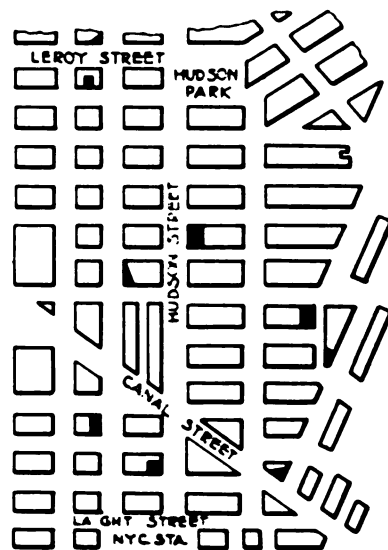
The completed buildings, due to this change of policy, are five in number; on the northwest corner of Hudson and Vestry Streets; No. 16 Desbrosses, which extends all the way through to Watt Street; the northeast corner of Greenwich and Spring Streets; the northeast corner of Broome and Clark, and a building occupying the entire block front on the east side of Hudson Street, between Vandam and Charlton Street. All of these have been equipped most thoroughly with electrical appliances for manufacturing, the installations for lighting and power being very complete. These buildings now house such diversified trades as manufacturing chemists, corrugated iron workers, boiler tube making, the producing of bakers' supplies, silk winding, and the making of soap and beef extract.

In the six buildings for which electric installations have been completed there will be 6,575 lamps and 1,220 horse-power.

Three other large structures are now under way, those at the southwest corner of Hudson and Morton, the northwest corner of Canal and Sullivan and on the northwest corner of Clark and Dominick. The general policy of the Trinity Corporation is to erect buildings only at the request of desirable future lessees, which shows that the men of business have not been

slow to perceive the possibilities of Greenwich village as a manufacturing center. The erection of the Heide factory on Hudson Street shows a departure from the usual course of Trinity real estate dealings for, contrary to the custom pursued for more than a hundred years, the land was sold outright to the would-be purchaser. The traditional policy of Trinity Church as a landlord has been to rent on long leases but seldom to lose control of the ground rights.

The advantage of this newer business neighborhood is principally one of lower rent for the same amount of space. It is also pointed out, that with two elevated roads, several surface lines, and its nearness to the North River docks, the west side as it now stands offers better trade facilities than several long-used business districts.



Map Showing Location of Factory Buildings Erected by the Trinity Corporation in the Greenwich Section



## WIRING AND INSTALLATION CONTRACTORS

### West of Broadway and Fifth Avenue

Amsterdam Ave 452—C A Christesen  
 Amsterdam Ave 648—H Blumstetter  
 Broadway 237—Electric Cons & Supply Co  
 Broadway 335—Park Sullinger  
 Broadway 379—J S Bihlin  
 Broadway 593—E W Hirsch  
 Broadway 725—L F Benn  
 Broadway 1170—The Chas I. Eidlitz Co  
 Broadway 1265—S W Electric Co  
 Broadway 2382—H S Beidleman  
 Broadway 2742—H Reinwald Jr  
 Church St 50—L K Comstock & Co  
 Columbus Ave 220—T F Carr & Co  
 Columbus Ave 330—C T Pinkham & Co  
 Columbus Ave 549—Hoffman & Elias  
 Cortlandt St 26—Cleveland & Ryan  
 Cortlandt St 39—Blackall & Baldwin  
 Cortlandt St 39—Berg & Co  
 Cortlandt St 84—Bleye Elec Co  
 Duane St 172—Jas F Hugh Co  
 Eighth Ave 2719—Frankline Elec Co  
 Eighth Ave 2527½—M Kohosoff  
 Fifth Ave 65—L A Whitney  
 Fifth Ave 75—H M Walters  
 Fifth Ave 503—Flucker & Keedwell  
 Fifth Ave 571-573—Hatzel & Buehler  
 Greenwich St 183—Thomas & Johnson  
 Greenwich St 207—F A Frey  
 Greenwich St 255—F C Ross  
 Hudson St 660—Edw S Eaton  
 Sixth Ave 110—J V Johnson  
 Sixth Ave 617—Zenker & Siems  
 Sixth Ave 780—C C Bohn Electric Co  
 Sixth Ave 873—John W Flint  
 Seventh Ave 192—Emil Christensen  
 Seventh Ave 727—Conduit Wiring Co  
 Thames St 27—Watson Flagg Eng Co  
 Thames St 27—McLeod Ward & Co  
 Varick St 132—Eugene P Etzel  
 Warren St 73—J P Hall  
 Warren St 97—Wm F Duffy  
 Warren St 96—Independence Electric Co  
 West St 116—Knickerbocker Electric Co  
 West St 463—Western Elec Co  
 West Broadway 430—J H. Roberts  
 West 17th St 156—Harasy A Hanft  
 West 21st St 35—W J McClure & Co  
 West 26th St 54—Louis Freund  
 West 27th St 20—Payne Hayden Co  
 West 28th St 11—Thos L Dillon  
 West 29th St 15—Dennis G Brussel  
 West 30th St 110—Tucker Elec Con Co  
 West 33d St 209—E J Elec Installation Co  
 West 34th St 45—Peet & Powers  
 West 38th St 72—A J Buschman Co  
 West 42d St 25—Russell Electrical Co  
 West 42d St 29-33—Germond & Turner  
 West 42d St 112—Oberg Blumberg & Bleyer  
 West 45th St 100—F A Bohling  
 West 49th St 422—Frank Pisch  
 West 61st St 120—J L Moriarty  
 West 72d St 176—T J Kaufman & Co  
 West 111th St 147—Mariposa Electric Co  
 West 116th St 227—Lewis S Davis  
 West 135th St 114—Nathan Zolinsky  
 Wooster St 12—Dorbrow & Hearne Mfg Co

### East of Broadway and Fifth Avenue

Beekman St 1—Elec Motor Insp & Rep Co  
 Beekman St 74—Jordan Bros Inc  
 Broome St 105—B H Weinberg  
 Cedar St 16—Wm Truswell & Son

Dover St 8—E W Hazazer  
 East 7th St 138—H A Schreiber  
 East 9th St 65—George D Beinert  
 East 9th St 51—B W Sandbach & Co  
 East 22d St 27—Hunt & Morgan  
 East 22d St 113—J Livingston & Co Inc  
 East 23d St 10—Porsth Elec Co  
 East 23d St 42—Kimball Elec Construc Co  
 East 23d St 145—Bateman & Miller  
 East 25th St 122—Isador Fajans  
 East 28th St 114—Burkart Elec Co  
 East 30th St 13—Geo H Shuman  
 East 37th St 207—Reis & O'Donovan  
 East 42d St 39—Edwards Elec Con Co  
 East 42d St 45—Cowden & DeYoung Inc  
 East 55th St 147—Morris Levi & Co  
 East 57th St 426—Behlert Elec Co  
 East 59th St 57—Stanley & Ruth  
 East 72d St 167—E J Dustman  
 East 77th St 440—Edw Zenker  
 East 85th St 204—J E Woelfle  
 East 125th St 13—L L Strauss  
 East 125th St 31—Leo S Stern  
 East 125th St 77—Peter Jansen  
 Frankfort St 26-30—J F Bidstrup & Co  
 Fulton St 44—E Klein & Bro  
 Fulton St 96-98—Fulton Electric Co  
 Gold St 29—Mfrs & Inventors Elec Co  
 Gold St 82—Naumer Elec Co  
 Grand St 209—Nathan Klein Co  
 Grand St 235—Joseph Wainrob  
 Great Jones St 38—Geo Weber & Bro  
 John St 52—Alfred Whiteley  
 Liberty St 120—Edward B Stott & Co  
 Liberty St 123—G Curt Kastner  
 Liberty St 126—S Arthur Brown  
 Madison Ave 314—Nimis & Nimis  
 Madison Ave 1122—F W Cohn  
 Park Ave 103—Stehlin-Miller-Henes Co  
 Park Ave 1630—Guarantee Electric Co  
 Park Ave 1955—Blackman & Guttman  
 Pearl St 59—Oswald Elec & Eng Co  
 Third Ave 221—Maurice Young  
 Third Ave 670—Silverman Bros  
 Third Ave 1890—Parker & Cooley  
 Third Ave 2307—Rappaport Electric Co  
 Wall St 2—Edwin C Gee  
 Wall St 71—Fleck Co M F  
 Wall St 99—Chas Davidson

### Bronx

Baker & Fox—313 E 141st St  
 Bogan Irving A—4192 Park Ave  
 Evans & Kaestner—893 Intervale Ave  
 Hinners F J Jr—585 East 135th St  
 Israel & Co—450 East 148th St  
 Kips John & Co—161st St and 3d Ave  
 Kirschott C Arthur—584 East 163d St  
 Landy Jacob—673 Elton Ave  
 Mangam H I & Co—333 East 162d St  
 Ross E I—356 East 138th St  
 Schwarzer & Co—460 E 167th St  
 Vielberth Jos F—1243 Taylor Ave  
 Wienecke Louis—961 E 165th St  
 Woods Lewis H—2355 Jerome Ave

### Yonkers

Excelsior Gas & Elec Fixture Co—42 Warburton Ave  
 Imrie & Underhill—Bronxville N Y  
 Intervale Electric Co—12 N Broadway  
 Nugent A W Co Inc—5 Dock St  
 Seaboard Elec Co—12 N Broadway  
 Westchester Elec Equip Co—34 N B'way

# The Edison Monthly

February

1911

## C O N T E N T S

VOLUME III

NUMBER 9

	Page
Editorial - - - - -	250
The Automobile Show - - - - -	253
Knabe Building Adopts Edison Service - - - - -	257
Night Views of New York - - - - -	258
American Express Company Abandons Private Plant - - - - -	259
An Electric Eraser - - - - -	259
Medical Uses of Electricity - - - - -	260
Electricity and the Christmas Rush - - - - -	263
Electric Fan to Prevent Frosted Windows - - - - -	265
An Electrically Operated Wood Yard - - - - -	266
Westinghouse Company Brings Out Relay - - - - -	267
New Theatres in the Bronx - - - - -	268
Clerical Work Done by Electricity - - - - -	270
Electric Pump for the Eiffel Tower - - - - -	272
Lighting of the Grand Concourse - - - - -	273
Improvement of Photographic Equipment - - - - -	274
An Authoritative Biography of Mr Thomas A Edison - - - - -	277
Reflector Types - - - - -	279

# Editorial

## *The Edison Monthly*

Published by

*The New York Edison Company*

General Offices

55 Duane Street New York City

President

Mr ANTHONY N BRADY, 54 Wall Street

Treasurer

Mr JOSEPH WILLIAMS, 55 Duane Street

Secretary

Mr LEWIS B GAWTRY, 4 Irving Place

Electric vehicles were displayed in the second division of the eleventh annual Automobile Show held in the Madison Square Garden from January 16th to 21st. A full and careful inspection of the exhibits could not but persuade the thoughtful observer that although electric vehicles are at present outnumbered by the other type of power wagons, the greater future lies before the electric. Industrial evolution as well as racial evolution is governed by the same law of the survival of the fittest. The fittest in commercial life is the simplest; the tendency of all improvements in machinery is to simplify. It might be accepted almost as a law of economics, that given two pieces of mechanism, both efficient, but the one more complex than the other, the simpler mechanism will in course of years supersede the complex.



This same tendency of industrial evolution applied to the matter of the power wagon leads one inevitably to the conclusion that in the future elec-

tric wagons will dominate the trucking business. This prediction is not made on any supposition of the inefficiency of the other type of motive power but because of the greater simplicity of operation in the use of electric vehicles. In the complex mechanism presented by the other type the user must face the problem of maintaining a force of expert mechanics to care for his cars. In the case of the large consumer he maintains his own mechanical staff, while the man owning two or three trucks must engage expensive garage service.



It has come to be almost a commercial platitude that the relative cost of any two methods of operation depends not so much on initial outlay as on cost of maintenance. It is in this that the electric vehicle demonstrates its superiority. Any man intelligent enough to properly handle a team of horses can successfully operate electric trucks, whereas in the other type of power wagon the operating mechanic must be in charge, either directly or indirectly.



More adequate provision for the electrics was made at the Automobile Show this year than previously. It seems, however, a little unfortunate that electrical pleasure vehicles were included in the second division in with the electric commercial cars, rather

than being included in the week devoted to pleasure vehicles. This decision caused the withdrawal of entries on the part of several prominent electric pleasure vehicle manufacturers.



Exhibitors will probably be interested to learn the extensive preparations for the display of electric vehicles which are being arranged for the coming electrical show next Fall. This will be held in the New Grand Central Palace, where in addition to the ordinary floor space allotted for exhibitors there will be a complete track. Electric vehicles of all kinds can thus be displayed to best advantage, showing them not only stationary in their apportioned space but in motion around the track. In this way visitors attending the show with a view to investigating the electric vehicle situation will be given ample opportunity for a thorough inspection of the different styles of cars. Such an arrangement cannot but be of advantage to electric vehicle exhibitors.



In this connection, it is not without significance that ten years ago this January the predecessors of the General Vehicle Company, then known as the Vehicle Equipment Company, opened for business. Although this change of name has been made, their electric trucks have been turned out during the past decade without interruption. This is the longest period of uninterrupted electric vehicle production on record, for although an-

other firm started a bit earlier, operations were suspended for a considerable length of time several years ago. This month also marks the first anniversary of *Elec-tricks*, the house organ of the General Vehicle Company.



The appearance of an authoritative biography of Edison is one of the most important literary productions in this department for the last decade. It goes without saying that a book such as this, a review of which will be found elsewhere in this magazine, is destined to great popularity among all classes of readers. Young and old, the studious and the unlearned, will be quickly drawn to this authoritative presentation of the remarkable man who was more than a scientist, more than a business man and more than an inventor. In judging of conditions appertaining to American life and civilization it is interesting to know that at present probably more than 500,000 workers are engaged in occupations directly connected with inventions either of his creation or of his improvement. This biography cannot fail to be one of the most popular as well as one of the most important biographies of the last fifty years.



The *Indicator*, published by the Otis Elevator Company, has completed the third year of that paper's existence. The *Indicator* is to be congratulated not only on its handsome cover, but on the interesting nature of the photographs and reading material presented within.



## Electrics at the Automobile Show



Group of Electrics Seen at the Automobile Show. Studebaker Delivery Wagon, Waverley Coupe, Hupp-Yeats and Detroit Chassis, General Vehicle Truck and Studebaker Brougham

## The Automobile Show

THE second division of the Automobile Show, which included exhibits of commercial vehicles, both electric and gasoline, electric pleasure vehicles and accessories of all kinds, opened on Monday evening, January 16th, with a large crowd in attendance.

Towards the end of the week, managers of many important firms, both in this city and outside, were present inspecting vehicles.

No one could walk through the aisles and note the names of firms listed as users of power wagons, without realizing that the electric commercial vehicle has proven its right to existence.

Power wagons for ambulances, trucking, fire engines, tower cars, and dumping wagons were to be seen from one end of the Garden to the other. In every case lists of users were given, and the combined customers



Cup Won by a Two-ton New York Edison Electric Truck in the Recent Endurance Run Conducted by the American; Prize Awarded for Lowest Running Cost per Mile

represented nearly every prominent firm in every large trade throughout the country, from sea to sea.

To the left, on entering, was the Lansden exhibit, where "Adam," its seven-year-old truck, arrived that afternoon, completing the run from Washington, D C, to the Show, was attracting popular attention. Besides this was a beer truck, a two-ton moving van, an ambulance



Hupp-Yeats, a Newcomer Among Electric Pleasure Vehicles, Built on French Model. Mileage, seventy to ninety miles; speed, five to twenty miles an hour



## The Edison Monthly

and a rack-side wagon, illustrating the different types of trucking possibilities.

Opposite stood the Anderson group, popularly known as the "Detroit," with its regular array of pleasure vehicles and its newer venture, a thousand-pound express wagon.

Among the pleasure cars is a new "gentleman's underslung roadster," an electric on the same design as a gasoline touring car.

Just beyond was the General Vehicle division, admirably arranged, with



Interior of a Detroit Four Passenger Brougham Showing Steering Gear Inside. Thus a man can drive himself to a dinner

types of commercial wagons ranging from the new 700-pound model light delivery wagon, 1,000 and 2,000-pound wagons with metal bodies, to a tower car made for the street lighting company in Rio Janeiro.

One of the features of the Studebaker exhibit was a five-ton electric truck which has been in use by the Anheuser-Busch Brewing Company for 300 days, running on an average of twenty-five miles a day without costing the owners a cent for repairs. There was also on exhi-



One of the popular exhibits at the Automobile Show. "Adam" has covered 37,000 miles. "Adam" came up from Washington, D C, cross-country to the Automobile Show, well adorned with mud.

bition a five-ton coal truck, a number of which were recently consigned to Seattle, Wash. It is equipped with an electric emptying device which the driver operates from the seat. One of the types of the light delivery wagons from Gimbel's installation of sixty-six cars was on exhibition. The victoria phaeton and the coupe on display marked radical reductions in the price of these styles of vehicles. The price of the victoria phaeton is \$1,500 and of the coupe \$1,775.

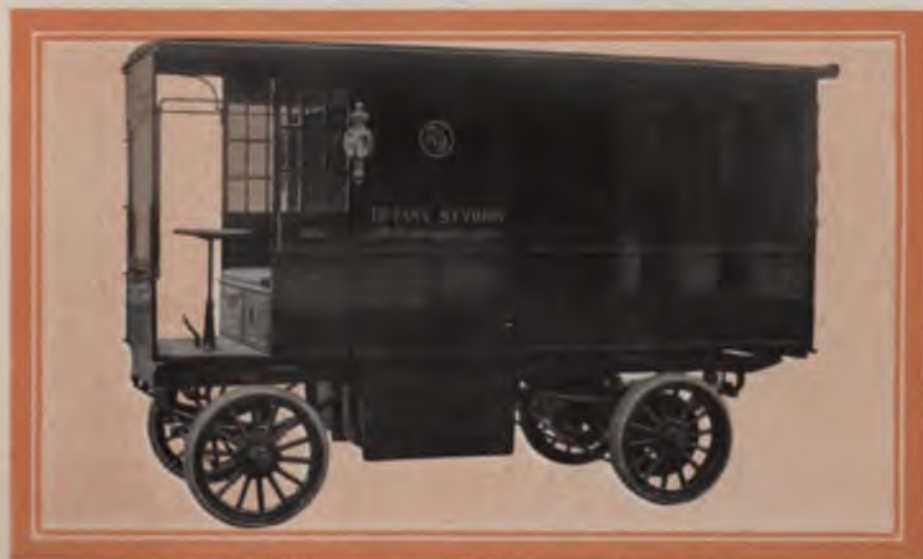
The Waverley Company had on exhibition its new light delivery wagon. This firm has perfected a shaft-driven commercial vehicle with a capacity of 600 pounds, for which advantages of speed and mileage are claimed. The company also displayed a one-ton delivery wagon and a four-seated brougham, all of their vehicles being equipped with Edison batteries.

The Hupp-Yeats specialty was a four-seated French coupe. The exhi-

bitions of this concern have never before included any kind of an electric, their best known car being the little Hupmobile. The manufacturers, though, have been convinced that the future holds forth great prospects for the electric vehicle in preference to any other, and they wish to become established on the market as manufacturers of electrics. The 1911 is the first model.

In the Ward exhibition were two electric trucks, one a standard car with Edison batteries, which sells for \$2,300, and the other a special light truck which was made for F M Fairchild Sons, a Brooklyn concern.

One of the features of the second week's display, commented upon in many of the newspaper reports, was the number of women interested in the electric pleasure vehicles. Attendance during the commercial division of the Automobile Show averaged from 10,000 to 12,000 daily.



Typical Q V Wagon, Showing Shield in Front to Protect the Driver  
At the Q V exhibit were five cups, won in recent runs



## The Edison Monthly



Knabe Building, Southwest Corner of Fifth Avenue and Thirty-ninth Street  
Private plant has lately been abandoned. This type of building is carried to  
its highest development when central station service is used

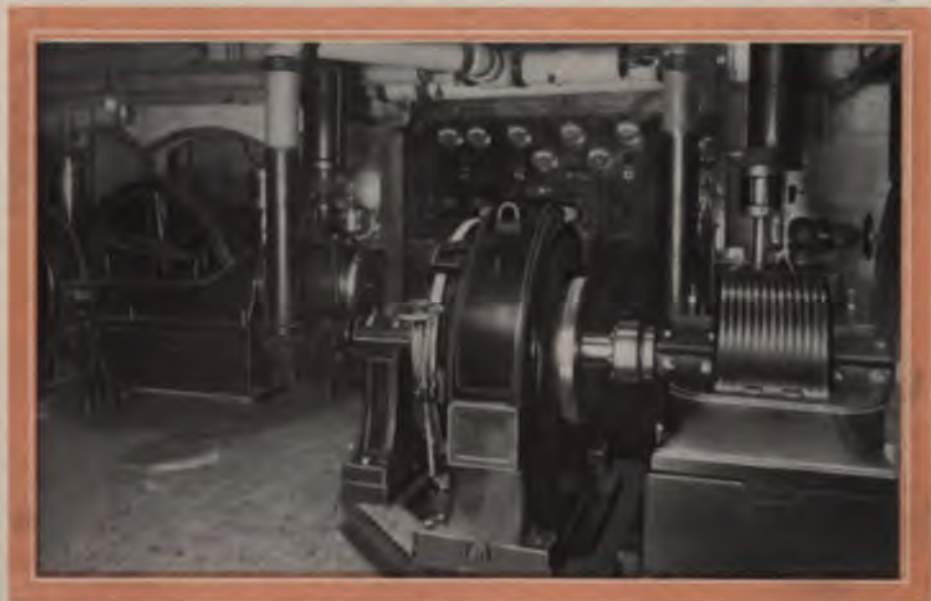
## Knabe Building Adopts Edison Service

ONE of the first large piano manufacturers to locate on Fifth Avenue was the Knabe Piano Company, which leased the structure at the southeast corner of Thirty-ninth Street, directly opposite the Union League Club and diagonally opposite the magnificent New York Public Library. This handsome fifteen-story modern loft building is given over to the manufacturing of small wares, a usage which, in this character of building, is made possible only by the use of the clean and quiet electric motor.

The electrical equipment of the building consists of three electric elevators, six electric pumps, 3,500 in-

candescent lamps and originally of a complete generating plant, including a storage battery equipment. This plant, which formerly supplied the Knabe Building, has been abandoned and electricity is now purchased from the Edison System.

The discovery of tungsten and its application to the incandescent lamp has made it possible to purchase electricity for a building like this for about one-half the price which it formerly cost. The tungsten and tantalum lamps also have made it possible to purchase electricity from a central station source at a cost considerably less than electricity can be made for in the building.



Portion of the Abandoned Plant, Knabe Building



## Night Views of New York

**I**T is only within the last few years that New Yorkers have come to a realization of the beauties of their own city. When sky-scrapers first appeared they were unheard of; people told us that they were hideous, because they had never seen their like before, and New Yorkers straightway agreed with them, and began apologizing for their tall buildings.

But as they increased in numbers, especially near the water-front, and each individual structure ceased to look like one lone jagged tooth in the

jaw of a giant, people woke up to the fact that America had evolved a distinct type of architecture, all its own, far more characteristic of the country than anything borrowed from classic Greece or Italy.

Probably nothing aided more in making New Yorkers appreciate the beauty within their own city than the extensive use of electric lights. In the evening, when waning daylight blots out crudities, the business aspect of the sky-scraper is lost and commercial New York becomes a dream city.



City Hall Park at Twilight on a Winter Evening. Nathan Hale statue in the foreground, the World and the Tribune buildings in the distance

## American Express Company Abandons Private Plant

ONE of the large users of central station current is the American Express Company, a picture of whose abandoned private plant at 65 Broadway, is here shown. This company also has Edison Service at its uptown offices, Madison Avenue and Forty-seventh Street, where it is used for illuminating purposes and charging electric vehicles. It is interesting to note that the American Express Company, among the first of the large transportation companies to see the possibilities of the electric vehicle as a decided improvement over the horse-drawn truck, at once subscribed for central station current.

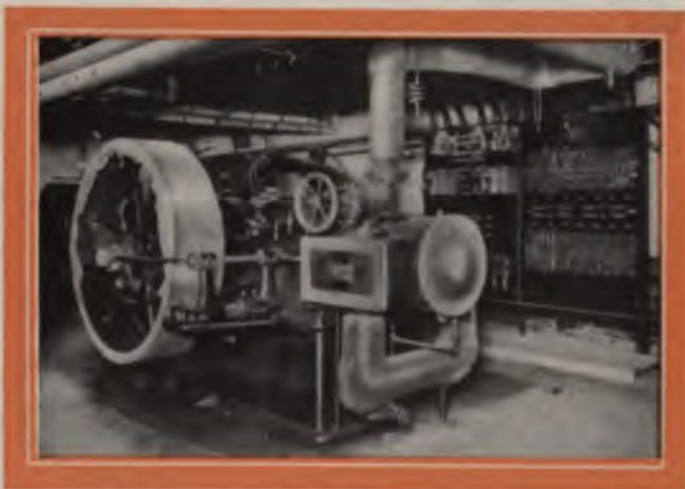
All business is dependent on some means of transportation, so that one of the important problems of to-day is the cost of delivering small quantities of goods to the ultimate consumer.

Electricity has probably done more to reduce the cost of delivery from the purchaser to the consumer than any other agent, and at the same time it has done much to cut down the time required in transporting parcels.

### An Electric Eraser

EVERY draughtsman knows that changes and corrections of errors upon tracings are not easily made without danger of injury to the cloth. The work of erasing must be done with a light, quick stroke, and most men have not the time or patience to do this.

A device especially designed for this work consists of a circular eraser connected through a flexible shaft with an electric motor, and is rapidly revolved thereby. The operator can apply the eraser with any pressure that may be required. A small rubber roll bears upon the eraser as it revolves, removing the superfluous ink. The pressure of this roll is adjustable. The eraser is attached by means of a winged nut so that it may be renewed.—*Scientific American*.



Portion of Abandoned Plant of the American Express Company Building  
The machinery, now out of use, is encased in canvas wrappings



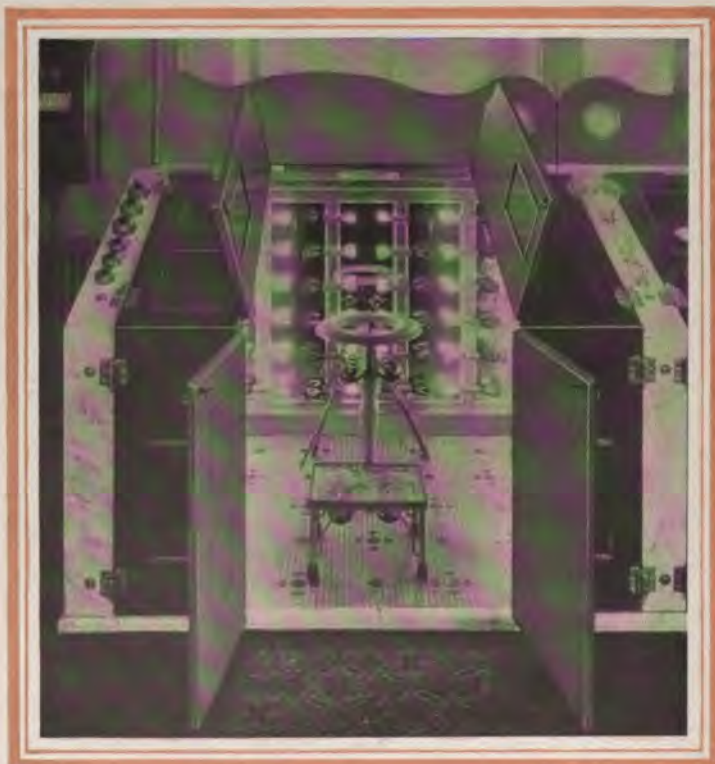
## Medical Uses of Electricity

ONE of the most interesting of recent medical developments has been the use of electricity in the treatment of many diseases which have hitherto proved obstinate when approached through the ordinary channels of medication. Current is applied in its various manifestations for light, for heat and for the stimulation afforded by slight shocks. The muscular reactions caused by the flowing of current through portions of the body also have therapeutic value.

Among the complaints which are now agreed to be remedied by electric treatment are neuralgia of the limbs and joints, neuritis, lumbago, sciatica, chronic rheumatism, Bright's disease, asthma, bronchitis, gout, some forms of spinal disease, neurasthenia, insomnia and nervous disturbances of the heart. No one would for a moment insist that all forms of rheumatism, arterio-sclerosis and other troubles closely bordering on the incurable are immediately done away with by

the application of electric light or heat, but when the disease has passed the curable state, even then the patients can be greatly helped by electrical treatment.

The ordinary devices employed are the static machine, electric massage, electric light baths, hot-air apparatus for affected limbs, ultra-violet arc for rheumatism



Electric Light Bath Cabinet. Light several times the intensity of sunlight can be produced by incandescent lamps. Hydratic Institute, 2025 Broadway

and neuritis, electric air douche for joint diseases, rheumatism, gout, sciatica and lumbago, exercising machines of different types and hydro-electric baths such as are given in Paris, Nauheim and Carlsbad.

The electric treatment of diseases has become so well recognized that there are in New York several establishments devoted to this sort of cure, to which physicians can recommend their patients instead of sending them to Europe. No one but a doctor would state dogmatically what applications of electricity would be used for any complaint, but the general principles are easily comprehended.

For instance, sunlight is one of the best remedies known. While it cannot bear directly on any disease, still, the general stimulating and tonic effect of sunlight is almost as fundamental as the curative qualities of fresh air. But sunlight is not always attainable. The electric light bath is an acceptable substitute, for it can be made of summer intensity on a gray winter day, while the heating produced in a closed cabinet is even greater than that of sunlight.

The electric air douche gives a strong, concentrated alternating hot and cold air current, which can be directed upon any affected area, acting



Electricity is also Used in Dentistry. An office equipped with lights so that work may be done on dark days. The drill is driven by a small electric motor, while the sterilizing utensils are electrically heated. Office of Dr Bloom, 2 Avenue B

as a tonic for diseased joints especially. The vibration of the electric massage improves the circulation, so assisting the digestion and is generally beneficial. Another machine, not devoid of the elements of humor, provides the general shaking up of horseback riding. Patients who refuse to take the proper amount of exercise are mounted upon this saddle, the motor is started, and, willy-nilly, the rider gets the exercise he needs. Oddly enough, this is good for the nerves.

Violet rays are applied to neurasthenic patients, have benefited cases of locomotor ataxia, have assisted in curing rheumatism, sciatica, and are extremely effective in cases of acute



bronchitis. Hot-air apparatus appears to the outsider like tin boxes of various shapes. These are designed to fit over either arms, legs or trunk, for local treatment. When the current is turned on as high a temperature as 400 F de-

grees can be produced without any danger, however, of burning the patient.

The hydro-electric baths are of European origin. There are porcelain cells arranged for the feet and hands while the electric current is passed

through the water. This treatment applies to a long list of ailments, from writer's cramp to hysteria. When the sinusoidal current is used, one has the treatment given at the German baths for heart trouble.



Horseback Exercise Given by Electric Motor Attachment. A patient partially paralyzed can be given proper exercise by use of this device. Apparatus at the Hygeia Medical Institute, 4 West Eighty-third Street



Electric Bath and Hot Air Treatment Apparatus, Hygeia Medical Institute, 4 West Eighty-third Street, for Neuritis, Sciatica, Head-Trouble and Other Ailments

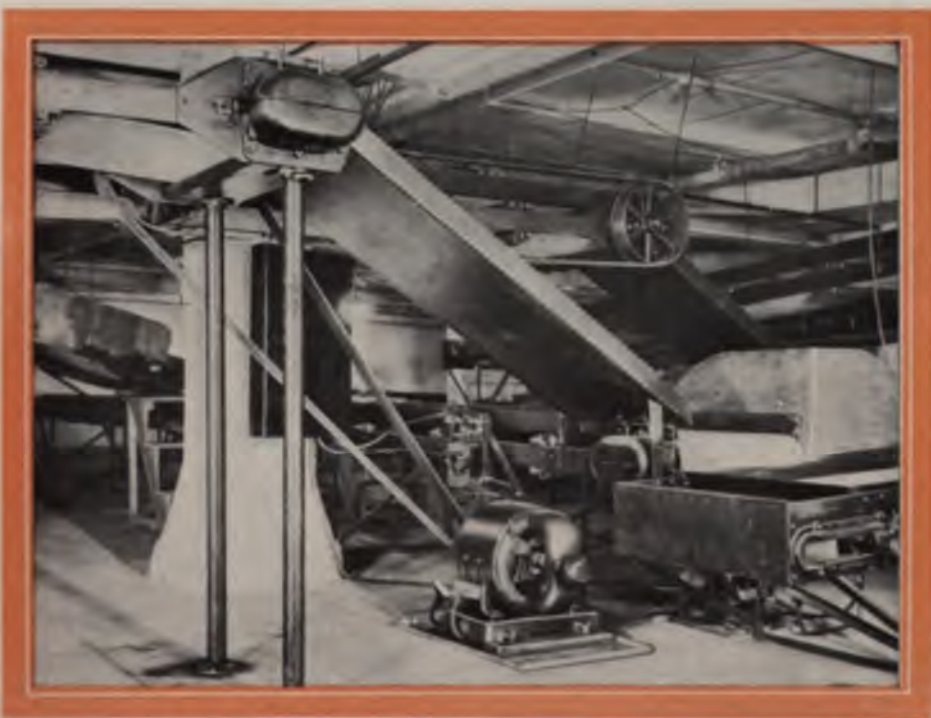
## Electricity and the Christmas Rush

**E**LECTRICITY, both within the large department stores and without, played a larger role than ever this year during the rush Christmas season. Officials have by this time sufficiently recovered from the strain of those heavy weeks and are busy figuring how much, in both time and money, the use of electricity has saved them.

First of all comes the matter of deliveries, in which the electric wagon has come to serve an important part.

This year nothing but favorable reports have been returned by half a dozen of the largest stores in New York who are electric vehicle users. Their rapidity in getting around the city is amply demonstrated by the fact that electric delivery wagons used by these department stores made three trips a day, while it was with the utmost effort that horse vehicles were making but two.

In all the travel of the thirty-eight electric trucks used by Gimbel



Electric Parcel Conveyor at Gimbel's with Electric Motor in the Foreground. This is a valuable labor-saving device, doing the work of from thirty to forty men. At the extreme right is a turn where the parcels drop from one belt to another and continue on their journey



## The Edison Monthly

Brothers, ranging in capacity from one and a half to three tons, not a single delay was reported. Arnold, Constable & Company speak in the highest terms of the performances of their eleven electrics, while A M Lupus, the head of the delivery department, cited their especial superiority on slippery days, when horses were continually

electricity is likewise gaining victories inside. Gimbel Brothers have in use in the sub-basement of their store an automatic parcel conveyer. It is estimated that this device does the work of from thirty to forty hands. It consists of a series of belts about three feet in width which transport the parcels from one section to another of



Rug Department, Gimbel's. A remarkable example of store lighting

falling. James A Hearn & Son have in use thirty-five electric trucks, the first of which was put on trial eleven years ago; since then their entire delivery work is done by electrics. The smaller installation at Wanamaker's gave admirable service.

With electrically propelled vehicles monopolizing the outside work in the delivery departments of the big stores

the delivery department for the checking up process and finally deposit them at their several destinations in the city, express, suburban and special delivery sections.

The belts glide smoothly over rollers, pass over and under and meet at right angles where a turn is desired. The parcels reach the conveyer through spiral chutes from the coun-

ters where they are wrapped in all parts of the building and are carried by the conveyer to a section where they are inspected, sorted and transferred to the belt which will take them to their respective destinations. It is propelled by thirteen motors, ranging from one-half to three-and-a-quarter horse-power and proved of

### Electric Fan to Prevent Frosted Windows

IT was recently discovered by a clerk in a Denver drug store that one of the best and simplest means to keep frost from a show window is the use of an electric fan. He had tried all the numerous remedies,



Christmas Toy Windows, Gimbel's. The lighting brings out the most minute details

especial value during the holiday rush, when by slightly increasing the speed of the belts and the number of sorters the work was greatly facilitated.

Another extremely useful device at the Gimbel Store is the electric dumbwaiter. There are eight of these, and it is estimated that during the Christmas season they eliminated the hiring of one hundred and fifty boys,

including glycerine and alcohol, when one day he discovered by accident that a current of air circulating through the windows would keep the frost down. It suggested the electric fan, and he at once set it into operation, with the result that in less than an hour the window was clear of frost. It acts also as an advertisement, attracting passers-by.



## An Electrically Operated Wood Yard

**K**INDLING wood in itself is not an imposing or complicated affair. Providing kindling wood for a city the size of Greater New York, however, is a business that occupies some hundred firms. One of the oldest of these is that of Clark &

omy. It has generally been regarded as self-evident that wood yards must use steam-power, so that the sawdust and wood scraps could be utilized in keeping the furnace running. In fact, these bi-products of the kindling wood industry have always made steam-

power much cheaper than it is in other businesses. For several years, however, the manager of the Clark & Wilkens yards had been dissatisfied with their steam-driven machines, and as an experiment electric power was introduced in one yard.



One of the Eighteen-Inch Circular Saws Driven by Electricity Used in Clark & Wilkens' Wood Yard in Twenty-fourth Street

Wilkens, whose wood yards have been in operation for the last thirty years. This firm maintains three plants, one on Twenty-third Street, one on Thirty-fourth, and one far uptown for the newer section of the city. Recently electricity has displaced the steam engine, which for many years operated the yard in Twenty-fourth Street.

The exchange represents an excellent example of electric motor econ-

The result has proved extremely interesting. While the sawdust can no longer be used, the firm has found that the electric apparatus takes up so much less room that there is now saving in rental which will more than pay for the loss of the sawdust, while the owners are convinced of the added efficiency of electrically-driven saws and splitters.

The equipment consists of two saws, a small single splitter and a larger

double splitter. Thirty-five horsepower is the total capacity of the motors needed to operate the machinery. The double splitter is equipped with an elevator which carries the cut wood to the bins on the floor above, from where it is let down in chutes on the outside of the building into wagons in the desired quantities. The elevator consists of a belt which is several feet in width, with cross holds to catch the wood.

said to insure excellent performance and long life.

The new relay is of the dry type, while the former was oil-immersed. The non-inductive resistance that was used in the old style relay is retained in the new style, but is now built as a primary part of the relay instead. This resistance, permanently connected across the contacts, absorbs the inductive discharge of the coils at the moment of breaking of contact, and

assists in the elimination of sparking. As all the wearing parts used in the new relay are case-hardened, it is very durable. In fact, the relay has been designed as a hard service mechanism instead of as an instrument. The use of

nickel for the

contacts is a marked advancement making the cost of renewals negligible. The results obtained from the operation of motor-operated regulators by means of this relay have been satisfactory in every respect.

The wear on the contacts is so slight that the adjustment and renewal are greatly reduced. In case of necessity, however, this adjustment or renewal can be very easily effected.



Double Splitter Used by Messrs Clark & Wilkens. An electric elevator carries the output of this machine to overhead bins

## Westinghouse Company Brings Out Relay

THE Westinghouse Company has just brought out an entirely new design of the secondary or auxiliary relay for its induction regulators. The new relay is a radical departure from former types. It embodies several features that have been found desirable in this class of apparatus, and which are



## New Theatres in the Bronx

FOUR new theatres have been constructed in the Bronx within the last two years, and at the present time a fifth is nearly completed. This is one of the evidences

progress of the section. These are the Acme Theatre, at 156th Street and Third and Brook Avenues, erected by the Henry Morgenthau Company and controlled by the H C Miner Com-



The Acme Theatre. This playhouse is centrally located in the Bronx at a junction of three principal streets and in the midst of the business section

that the Bronx is developing into a community by itself, with its own amusements, for without its own amusements a locality never becomes anything more than a suburb. The opening of these theatres is in itself a guarantee of the permanency and

pany; Loew's National Theatre, Bergen Avenue, 149th Street and Westchester Avenue, erected by Marcus Loew at a cost of \$1,000,000; the Bronx Theatre, at 150th Street and Melrose Avenue, erected by the American Real Estate Company and

controlled by Percy G. Williams; the Prospect Theatre, at 160th Street and Prospect Avenue, erected by the Henry Morgenthau Company and controlled by Messrs. Freiderich, Gerston & Baer, and the Damascus Theatre, which is in course of construction at 875 Longwood Avenue. It is to be controlled by Knowles & Klein when completed. Isaac Hopper & Son are

inate the house. On a magnificent sunburst alone, suspended from the ceiling, there are two hundred globes. The softened lights and stage illuminating effects are particularly beautiful. Nothing but the very best vaudeville will be seen at this house.

The Acme Theatre is one of a chain of theatres of the H. C. Miner Company. It is situated in the central busi-



Part of the Interior of Loew's National Theatre, Bergen Avenue, 149th Street and Westchester Avenue, Bronx. It is lighted by 10,000 incandescent lamps and has a seating capacity of 2,800. The exterior is lighted by six flaming arc lamps.

the associate builders and the Henry Morgenthau Company are the owners.

On account of its size and perfect appointments the National Theatre deserves especial mention. There are 2,800 seats in this spacious playhouse and twenty-two boxes. Ten thousand incandescent lights, all set in especially constructed fixtures, brilliantly illum-

ness section of the borough. This theatre has only been open since last August and is fast gaining in popularity. The lighting is one of the most pleasing features of this playhouse. The reception foyer is excellently decorated and has a most comfortable appearance.

The Prospect Theatre has a seating



## The Edison Monthly

capacity of nearly fifteen hundred and in perfect equipment rivals many of the large new theatres downtown. It is cozy and homelike and the comfort of its patrons has been carefully considered. A complete and most modern lighting system has been installed. A softened effect is secured by obscure

out in the exterior and interior of the new Damascus Theatre, now nearing completion at 875 Longwood Avenue. The seating capacity of this house will be 1,200.

"It's a long head that has no turning."—*The World*.



Girls in the Addressograph Company, at Work on the Graphotype Machine. With this machinery a large department store does its payroll and time sheet in one day with two operators, while before the work occupied a large clerical force for several days

lights with the exception of the main ceiling, which is illuminated by a huge cluster chandelier of upward of one hundred lights. The lighting of the stage has been thoroughly studied to procure the most perfect scenic effects.

Syrian architecture is being carried

### Clerical Work Done by Electricity

THE introduction of the typewriter practically revolutionized the business methods of the civilized world. Aside from the machine, it also represents an idea, the

development of neatness and dispatch hitherto impossible in commercial records.

The typewriter idea has gone marching on, as manifested by the invention of numerous office machines intended to do other clerical work with greater speed and accuracy.

One of these is the "Addressograph." This is at the same time a machine, a system and a business firm,

on a graphotype, and from this it can be printed as many times as desired by the use of the addressograph. This arrangement becomes a desirable time and labor saving appliance for any firm handling a large amount of business.

The picture here shows some forty girls at the main office at work on the graphotype machine, which is electrically driven. No other motive power



View Along the Grand Concourse and Boulevard, Showing the Arc Lighting  
The Heintz monument in the foreground

since the company has to manufacture the appliances necessary to carry out the system. The idea, roughly, is this: most enterprises have a large number of names and addresses which they use again and again during the year on bills, payrolls and the like.

The Addressograph system makes it possible to use any name and address as many times as desired once it has been written out. Any list of names is type-written, set up

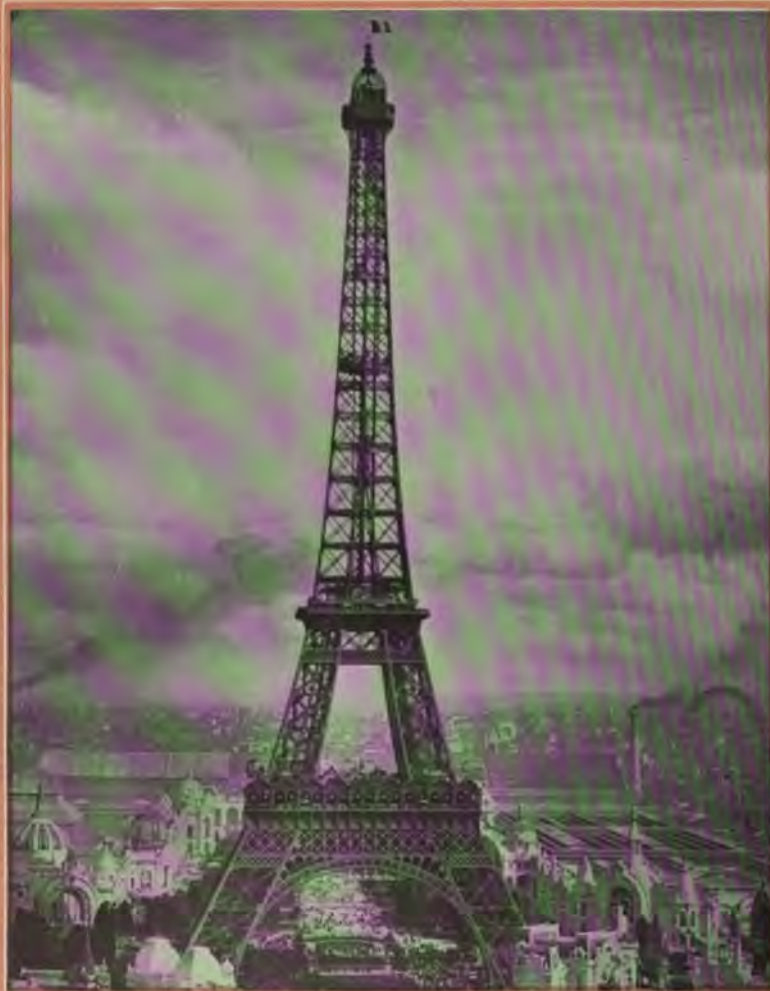
will serve, according to the manager, Mr J T Whitehead, because the machine must run so smoothly and be so entirely under control that the operator's entire attention can be given to listing names correctly. For this same reason electric drive is preferred, for the addressograph itself.

---

"Fools have their uses: If there were none, some of us could not make a living."—*The Caldron*.



## Electric Pump for the Eiffel Tower



*Photo by Underwood & Underwood*

Eiffel Tower Now Has an Electrical Pump

NEW electrically-driven pumps are to supersede the old steam-driven pumps in the Eiffel Tower, and the steam pumping plant is for sale. The Eiffel Tower, named after M G Eiffel, the engineer who planned it, is 1,000 feet high and is one of the finest examples of trestle work in the world, and one of the "sights" of Paris.

## Lighting of the Grand Concourse

**T**HE Grand Concourse and Boulevard in the Bronx was flooded with instant and brilliant illumination on the evening of December 21st when The Edison Company power was turned on in 145 arc lamps of 600 candle-power each by Commissioner Henry S. Thompson, of the Bronx Department of Water Supply, Gas and Electricity.

A distinguished party of Bronx Borough officials then journeyed in ten automobiles from 161st Street, the point where the Boulevard begins, to where it ends in the Moshulu Parkway, a total distance of more than four miles. This was the official opening of what is said to be one of the finest roadways in the world. It has been in course of construction for the last fifteen years and has cost at least \$6,000,000.

Originally an old highway traversed this course, but now it will be the main thoroughfare for automobiles en route from Manhattan to points in Westchester. Their course will be via 155th Street, Central Bridge and 161st Street to the Boulevard. At the southern extremity of the Boulevard is the beautiful Franz Siegel Park, and within a few blocks of the northern end is Van Courtlandt Park.

Among those present were Borough President, Mr. Cyrus J. Miller, Mr. Henry S. Thompson, Mr. John L. Jordan, Mr. H. F. McLaughlin, Mr. Thomas J. Higgins, Mr. B. Bergewin, Mr. C. F. Lacombe, Mr. J. N. Young, Mr. Stephen A. Nugent, Mr. R. H. Gillespie, Mr. Amos Schaefer, Mr. J. A. Henderson, Mr. Roger W. Bligh, Mr. A. J. Largie, Mr. William Connell and Mr. George Donnelly.



**The Grand Concourse and Boulevard, Extending Four Miles from 161st Street to Moshulu Parkway  
Opened on December Twenty-first—Lighted by The New York Edison Company**

## Improvement in Photographic Equipment

ANYONE who is working with the old-fashioned appliances still in use in many photographic dark-rooms would be astonished and delighted with the results which can be secured by the use of various electrical devices. By means of these not only can the tedious process be hastened, but it is possible to obtain finer effects in developing and printing.

A lighting innovation, the powerful aristo, is used in making enlargements. It is in an asbestos case, so that the light falls only on the photographic plate placed in the enlarging frame. By moving a lever the intensity can be changed from a comparatively low power to forty times daylight intensity. The illumination produced is stronger, steadier and gives less heat than is possible with any other kind of light.

Anyone who has done enlarging will realize the time saved in this way. In making line reproductions, in other words, those where the color is not being copied, a mercury vapor lamp gives especially satisfactory results. This light has the peculiar effect of hardening all lines: a seemingly blacker black stands out vividly from a clear white, very effective in copying line

drawings. More novel than the lighting arrangement are the various electric heating apparatus that the Photographic Department of The New York Edison Company has adapted for its work. There is the electric fan to expedite drying, and for extra quick work, a dryer, usually seen in hair-dressing parlors, has been found extremely serviceable. Several plates on a rack can be dried at once by use of the fan, the process taking from one-half to two hours, depending on the humidity of the air on any particular day. The current of warm air from the hair dryer can be directed only on one negative at a time, but the work is done in fifteen minutes. When one considers that without these extraneous aids it frequently takes twelve hours for plates to be ready



Electric Hair-Dryer Used for Photographic Plates—Will Dry a Negative in Fifteen Minutes



for printing, the usefulness of these electric appliances can easily be seen.

Another advantage is that it is possible to do finer work in this way. Printing from a wet plate, or from an enlargement, are old tricks where newspaper photography is concerned, but such treatment, while giving the desired speed, will never give fine results. The effect, though, of the warm air from the electric dryer on the plate aids in bringing out the details which might otherwise be lost. Even the directions to amateur photographers suggest that the films are better if dried in a warm room.

In mounting, an electric flatiron gives excellent results. This is done by use of gum tissue, which is placed between the print and the cardboard. The electric iron is then applied and a perfect piece of mounting results, since the print has absolutely no chance to curl, while crooked placing can be remedied by the application of a little more heat. Large photographic houses recommend a regular heating press, which costs at least \$50 to buy, and a considerable sum to maintain. Such an equipment, however, is desirable only when an immense amount of work must be turned out, but for the ordinary shop, where two hundred prints must be mounted in a day, the electric flatiron, costing one-tenth as much, will perform the same service.

An electric radiator facilitates operations in the dark room.

Hitherto many photographers have been forced to do this portion of their work in a cold room, since steam heat is too damp, and gas heating gives out too much light at the same time. An electric radiator gives dry heat with no lighting effect, and while the room is warming, water for warm solutions can be set upon the radiator. Any persons interested in seeing these improvements may secure permission to visit the Photographic Department of this Company and see the apparatus in use and notice the results obtained.

Amateurs who are acutely aware of the length of time ordinarily consumed in the drying of negatives and prints may be interested to know how newspapers publish in their afternoon editions pictures of some event which occurred not more than three hours before. In order to do this newspaper photographic departments do not wait for their negatives to dry at all, but "print from a wet plate," as it is called.

To do this, the negative, as soon as it has been developed, is placed still wet in the enlarging frame. It



An Electric Fan Will Dry a Whole Rack Full of Plates in Two Hours, or Six Times as Rapidly as When Nature Takes Its Course.



## The Edison Monthly



The Electric Hair-Dryer May be Used for a Single Negative or a Print Fastened to a Board to Prevent Curling

does not come in contact with any printing paper, so the soft surface is not damaged. In the enlarging process, a strong light is thrown through the plate in the frame, the enlarged positive reflection being thrown on a screen some feet off. The printing paper is then put upon the screen and the photograph printed directly upon it.

While this method has the advantage of extreme speed, it cannot produce fine work, for when the plate, still wet, is put in the frame the gelatine has not yet "set," as it were, so that lines and shadings have not become clearly defined. Then

when this is enlarged the muddiness of outline is increased.

This system of printing from a wet plate, combined with the quick printing, goes to account for the poor quality of so many of the pictures which appear in daily papers. This difference becomes strongly marked where some publication has a carefully prepared weekly supplement in which the photographs are extremely good, while many of the pictures seen in the daily editions are inferior. Newspapers that care about the appearance of their daily editions could adopt these various electric devices to use where speed, though not the greatest, is required.

"Young man, after you have lived thirty years longer, you will not know half as much as you do now, but what you do know will be worth twice as much to you."—*J Billings.*



An Electric Flatiron Used to Mount Prints Saves the Purchase of a Fifty Dollar Press

## An Authoritative Biography of Mr Thos A Edison

**T**HE past month has seen the publication of one of the most noteworthy biographies of the last decade, the two volumes, "Edison: His Life and Inventions," by F L Dyer and T C Martin.

The importance of the production is due in no small part to the subject matter, but gains in weight from the fact that this is the first "complete, authentic and authorized record of the work of Mr Edison," and that the inventor himself co-operated with the writers, furnishing material which could be obtained in no other way.

The authors are to be congratulated on having struck a happy balance, for the biography is neither too scientific for the laity, nor yet so popular as to lessen its value in the eyes of the scientific world. The book not only records his achievements but portrays him in relation to the discoveries and developments in the electrical field during the period in which Edison has done his work.

Doubtless the general public will read more closely the first seven chap-

ters dealing with Edison's early days, before the success of his stock-ticker suddenly transformed the wandering telegrapher into an inventor of note. On the other hand, persons interested more in things electrical will peruse carefully the 300 pages of purely

technical notes reserved for the appendix.

More fascinating biography cannot be imagined than that presented by the youth of the future experimenter. Surely no child has shown more striking characteristics of the genius that lies close to divine madness. His teacher frankly told the boy's



Copyright 1914, by The New York Edison Co

mother that her four-year-old son was "addled," and probably the vexed neighbors agreed with the vexed schoolma'am.

One of the youthful exploits serves for an example of this period when the experimental instinct ran riot. At the age of ten, Edison undertook some original research on the art of flying. Noting that this mortal frame was too heavy to navigate in the air, Edison persuaded a chum to swallow

## The Edison Monthly



*Mr Edison Inspecting the Work of a Fellow Inventor*

an enormous dose of Seidlitz powders, hoping that the gases evolved would give the requisite buoyancy. The failure of the experiment, the youthful inventor insisted, was due to lack of spirit on the part of the subject, rather than to any mistake in his theory.

Following these childish days came the years as a wandering telegrapher, during which period he equipped himself not only with all the technical knowledge to be had in the infancy of electrical growth, but by taking press reports gained some of that vast deal of "unnecessary information" which goes to make a "big man."

It is one of the never-failing wonders of the world, on what trivial chances great events have hinged. The sudden looming of Edison on the electrical horizon can be added to this list. He was in New York, friendless, and having applied for a position with the Western Union, he had "sought shelter at night in the battery room of the Gold Indicator Company, makers of the early stock-ticker."

This incident, as related by Edison himself, is, "On the third day, while sitting in the office, the complicated instrument for sending on all the lines suddenly came to a stop. All was pandemonium, and the man in charge became so excited that he lost control of all the knowledge he ever had. I went to the indicator, and having studied thoroughly, knew where the trouble ought to be, and found it." That night, Edison was put in charge of the whole plant with a salary of \$300 a month.

From this point the story develops logically through the course of discoveries and improvements more or less familiar to readers of THE EDISON MONTHLY. There followed in marvelously rapid succession quadruplex telegraphy, the telephone transmitter, the motograph, the microphone, the phonograph, and then the years devoted to the incandescent lamp. The earlier inventions seem more in accord with the popular American notion of genius, which is sudden success. On the whole, can there be a nobler



*Camera Study of the Great Inventor*



picture than the years of unremitting search and investigation directed by original thought, which produced the entire modern electric lighting and central station system, and which later still, after 50,000 experiments, has given the Edison storage battery?

Little space is devoted directly to drawing what one might call a personal picture of the inventor. One is shown the man at work, the world in which he moved and the methods by which he pursued his calling. Indirectly, however, the same effect is achieved. The quotations from Edison himself do more than add information. From the terse, clear English in which Mr Edison expresses himself, from the nature of his comments, and very largely from the things he leaves unsaid, the picture is unconsciously sketched, possibly more graphically than could be done by any conscious effort.

### Reflector Types

ILLUMINATION as an exact science is certainly a very recent development, the importance of which is just coming to be appreciated



Wide-Angle Distribution



Medium-Angle Distribution



Opalux Reflector, Narrow-Angle Distribution

by the general public. So thoroughly now is this subject treated that the making of shades and reflectors is recognized as a distinct trade, based on science, if not a science in itself.

There is no one shade which is perfect for every situation. Different models to meet all conditions are now being made, so that an illuminating engineer can furnish the precise type to give best service for any particular use. How specialization is obtained is shown by the accompanying illustrations, giving three types of Opalux reflectors, designed to furnish different degrees of distribution. These are referred to as wide, medium-angle and narrow distribution, their selection in any case depending on whether a more general or restricted illumination is desired.

"By using tantalum lamps for car lighting the Chicago Railway Company finds that it can save five cents a day per car. A thousand cars have been equipped with tantalum lamps, and will save the company \$18,000 a year on this basis. The company expects to equip all of its cars in this way, and effect a saving of over \$35,000 a year."—*Scientific American*.



## WIRING AND INSTALLATION CONTRACTORS

### West of Broadway and Fifth Avenue

Amsterdam Ave 452—C A Christesen  
 Amsterdam Ave 642—H Blumstetter  
 Broadway 237—Electric Cons & Supply Co  
 Broadway 335—Park Sullinger  
 Broadway 379—J S Bihin  
 Broadway 593—E W Hirsch  
 Broadway 725—L F Benn  
 Broadway 1170—The Chas L Eidlitz Co  
 Broadway 1265—S W Electric Co  
 Broadway 2382—H S Beidleman  
 Broadway 2742—H Reinwald Jr  
 Church St 50—L K Comstock & Co  
 Columbus Ave 220—T F Carr & Co  
 Columbus Ave 330—C T Pinkham & Co  
 Columbus Ave 549—Hoffman & Elias  
 Cortlandt St 26—Cleveland & Ryan  
 Cortlandt St 39—Blackall & Baldwin  
 Cortlandt St 39—Berg & Co  
 Cortlandt St 84—Bleye Elec Co  
 Duane St 172—Jas F Hugh Co  
 Eighth Ave 2719—Frankline Elec Co  
 Eighth Ave 2527½—M Kohosoff  
 Fifth Ave 65—L A Whitney  
 Fifth Ave 75—H M Walters  
 Fifth Ave 503—Flucker & Keedwell  
 Fifth Ave 571-573—Hatzel & Buehler  
 Greenwich St 183—Thomas & Johnson  
 Greenwich St 207—F A Frey  
 Greenwich St 255—F C Ross  
 Hudson St 660—Edw S Eaton  
 Sixth Ave 110—J V Johnson  
 Sixth Ave 617—Zenker & Siems  
 Sixth Ave 780—C C Bohn Electric Co  
 Sixth Ave 873—John W Flint  
 Seventh Ave 192—Emil Christensen  
 Seventh Ave 727—Conduit Wiring Co  
 Seventh Ave 2200—Nathan Zolinsky  
 Thames St 27—Watson Flagg Eng Co  
 Thames St 27—McLeod Ward & Co  
 Varick St 132—Eugene P Etzel  
 Warren St 73—J P Hall  
 Warren St 96—Wm F Duffy  
 Warren St 96—Independence Electric Co  
 West St 116—Knickerbocker Electric Co  
 West St 463—Western Elec Co  
 West Broadway 430—J H. Roberts  
 West 14th St 130—The Electrical Contracting Co  
 West 17th St 156—Harry A Hanft  
 West 21st St 35—W J McClure & Co  
 West 26th St 54—Louis Freund  
 West 27th St 20—Payne Hayden Co  
 West 28th St 11—Thos L Dillon  
 West 29th St 15—Dennis G Brussel  
 West 30th St 110—Tucker Elec Con Co  
 West 33d St 209—E J Elec Installation Co  
 West 34th St 45—Peet & Powers  
 West 38th St 72—A J Buschman Co  
 West 42d St 25—Russell Electrical Co  
 West 42d St 29-33—Germond & Turner  
 West 42d St 112—Oberg Blumberg & Bleyer  
 West 45th St 100—F A Bohling  
 West 49th St 422—Frank Pisch  
 West 61st St 120—J L Moriarty  
 West 72d St 176—T J Kaufman & Co  
 West 111th St 147—Mariposa Electric Co  
 West 116th St 227—Lewis S Davis  
 West 135th St 114—Nathan Zolinsky  
 Wooster St 12—Dorlbrow & Hearne Mfg Co

### East of Broadway and Fifth Avenue

Beekman St 1—Elec Motor Insp & Rep Co  
 Beekman St 74—Jordan Bros Inc  
 Broome St 105—B H Weinberg  
 Cedar St 16—Wm Truswell & Son  
 Centre St 60—D S Holcomb

### Dover St 8—E W Hazazer

East 7th St 138—H A Schreiber  
 East 9th St 65—George D Beinert  
 East 9th St 51—B W Sandbach & Co  
 East 22d St 27—Hunt & Morgan  
 East 22d St 113—J Livingston & Co Inc  
 East 23d St 10—Porth Elec Co  
 East 23d St 42—Kimball Elec Construc Co  
 East 23d St 145—Bateman & Miller  
 East 25th St 122—Isador Fajans  
 East 28th St 114—Burkart Elec Co  
 East 30th St 13—Geo H Shuman  
 East 37th St 207—Reis & O'Donovan  
 East 42d St 39—Edwards Elec Con Co  
 East 42d St 45—Cowden & DeYoung Inc  
 East 55th St 147—Morris Levi & Co  
 East 57th St 426—Behlert Elec Co  
 East 59th St 57—Stanley & Ruth  
 East 72d St 167—E J Dustman  
 East 77th St 440—Edw Zenker  
 East 85th St 204—J E Woelfle  
 East 125th St 13—L Strauss  
 East 125th St 31—Leo S Stern  
 East 125th St 77—Peter Jansen  
 Frankfort St 26-30—J F Bidstrup & Co  
 Fulton St 44—E Klein & Bro  
 Fulton St 96-98—Fulton Electric Co  
 Gold St 29—Mfrs & Inventors Elec Co  
 Gold St 82—Naumer Elec Co  
 Grand St 209—Nathan Klein Co  
 Grand St 235—Joseph Waintrob  
 Great Jones St 5—Bolton Elec Co  
 Great Jones St 38—Geo Weber & Bro  
 John St 52—Alfred Whiteley  
 Liberty St 120—Edward B Stott & Co  
 Liberty St 123—G Curt Kastner  
 Liberty St 126—S Arthur Brown  
 Madison Ave 314—Nimis & Nimis  
 Madison Ave 1122—F W Cohn  
 Park Ave 103—Stehlin-Miller-Henes Co  
 Park Ave 1630—Guarantee Electric Co  
 Park Ave 1955—Blackman & Guttman  
 Pearl St 59—Oswald Elec & Eng Co  
 Third Ave 221—Maurice Young  
 Third Ave 670—Silverman Bros  
 Third Ave 1021 E Kalkan  
 Third Ave 1890—Parker & Cooley  
 Wall St 2—Edwin C Gee  
 Wall St 71—Fleck Co M F  
 Wall St 99—Chas Davidson

### Bronx

Baker & Fox—313 E 141st St  
 Bogart Irving A—4192 Park Ave  
 Evans & Kaestner—893 Intervale Ave  
 Hinners F J Jr—585 East 135th St  
 Israel & Co—450 East 148th St  
 Kips John & Co—161st St and 3d Ave  
 Kirschhoff C Arthur—584 East 163d St  
 Landy Jacob—673 Elton Ave  
 Mangam H I & Co—333 East 162d St  
 Ross E L—356 East 138th St  
 Schwarzler & Co—460 E 167th St  
 Vielberth Jos F—1243 Taylor Ave  
 Wienecke Louis—893 Faile St  
 Woods Lewis II—2355 Jerome Ave

### Yonkers

Excelsior Gas & Elec Fixture Co—42 Warbur-  
 ton Ave  
 Imrie & Underhill—Bronxville N Y  
 Intervale Electric Co—12 N Broadway  
 Nugent A W Co Inc—5 Dock St  
 Seaboard Elec Co—12 N Broadway  
 Westchester Elec Equip Co—34 N B'way

# The Edison Monthly



March

1911

## C O N T E N T S

VOLUME III

NUMBER 10

	Page
Editorial - - - - -	282
Electrical Equipment of the "World"	
Composing Room - - - - -	285
An Electrically Driven Clock - - -	288
Church Illumination - - - - -	291
Drying Apparatus of the Underwriters'	
Salvage Company - - - - -	294
Pneumatic Tube in the Custom House -	296
Evolution of Street Lighting in New York	298
Concerning Electric Vehicles - - -	302
An Electric Valve Grinding Tool - -	304
Electric Industrial Trucks - - - -	304
Wanted—an Electric Automobile Agency	305
Electric Cooking for the Navy - - -	306
Electricity at the Child Welfare Exhibit -	308
Electric Theatre Signal - - - - -	309
A New Protective System - - - - -	310
Electric Appliances Now Sold by East Side	
Pushcart Peddlers - - - - -	311

# Editorial

## *The Edison Monthly*

Published by

### *The New York Edison Company*

General Offices

55 Duane Street New York City

President

MR ANTHONY N BRADY, 54 Wall Street

Treasurer

MR JOSEPH WILLIAMS, 55 Duane Street

Secretary

MR LEWIS B GAWTRY, 4 Irving Place

The adaption of electric melting-pots for linotype machines, such as are now in operation in the *World* composing-room, an account of which will be found in this issue, has a significance beyond that of an ordinary trade invention. It has frequently been insisted on in these columns that electricity used for light and power would do away with drudgery in the home and in the factory, and provide better working conditions for all classes of labor.

The electric melting-pot serves excellently as a text to preach again this same sermon. The method of heating formerly in vogue with type setting machines unavoidably produced gases which vitiated the air of the composing-room. In several offices, to obviate this difficulty, elaborate ventilating schemes were tried, but in spite of these attempts, no way of really eliminating the type metal fumes was devised.



Now, however, we have the electric melting-pot, which besides doing better work than the older heating

method, does away with the vitiated air in the composing room. There is not a man, working on the machines now used in the *World* office, who does not look forward to the day when the old method will be discarded in every printing office throughout the country. The next service which electricity can render the mechanical side of the newspaper business, will be to provide a means of heating electrically the frame on which the paper matrix impression is made. This is extremely hot and heavy work, quickly sapping the strength of the men who do it. The inventor of the electric melting-pot is now turning his attention to this next step.



Two severe explosions of fairly recent date have called attention to a curious situation with regard to tungsten lamps. This latest form of the incandescent bulb is recommended on account of its greater lighting efficiency, but no one has ever denied that the tungsten lamp should be handled with care. It is therefore interesting to note that when the recent explosion in Communipaw broke windows throughout the lower part of this borough, the tungsten lamps in those same offices remained intact. This is a repetition of the experience of shop-owners near the Grand Central Station at the time of the explosion there.

From the hardness manifested by these tungsten lamps during the two

explosions, we would not advise any small boy to set off giant fire-crackers under the family lights, or advise any undue rashness in their treatment. However, we would point to this as evidence that the tungsten lamp is not so fragile as is sometimes supposed, and is capable of excellent commercial service.



On the fourth of February a petition of involuntary bankruptcy was filed against the largest firm of horse-dealers in the East, and a temporary receiver has been appointed. This situation is extremely significant with regard to the rapid increase in the use of motor vehicles in New York, both for pleasure and business.

For more than a year, this firm has been battling against the tide, which has proved too strong. The truth of the situation is that the city is no place for the horse, and now that power vehicles have been perfected, the old order must change.



While the failure of this and several other large horse dealers is but another indication of the approaching disappearance of the horse from city streets, another occurrence of recent date points to the electric as the successor of the horse for city traffic. To quote from the newspaper account, "An auto delivery wagon, owned and driven by A Pell of 451 West 15th Street, took fire yesterday, exploded and was blown to fragments." On January 20th, an even-

ing paper records the explosion of gasoline in a garage, which injured six men and caused a fire which wrecked the building. The fire-risk involved in owning and storing power wagons other than electric is becoming plainer every day.



The dangerous character of gasoline in any form and for any use is attested by the number of explosions recorded by the daily papers. For instance, on the morning of February 7th, some excitable gasoline in Jamaica, Long Island, lost its head and blew up, thereby injuring nineteen workmen, four of whom are very seriously hurt and may not survive. A dispatch from Elgin, Illinois, of the same date relates another explosion in which twenty were hurt, two killed, and four probably fatally injured. Particulars are not available which would prove whether in these instances the use of electricity would have prevented accident, but in general it may be said that the use of electricity for light and power would forestall such explosions.



The Sinking Fund Commission has voted funds for twelve municipal milk depots. In this connection it is interesting to note that at the model station displayed at the Child Welfare Exhibit electric stoves exclusively were used, because of their absolute cleanliness and the even distribution of heat, which can be obtained only by electricity.



## Night Views of New York



Grand Concourse and Boulevard, Bronx. The Heine Statue



Union Square, Looking North Along Fourth Avenue

## Electrical Equipment of the "World" Composing Room

THE New York *World* has the most complete electrical equipment in its press- and composing-rooms of all the newspapers in New York. Electricity is used not only for lighting and to operate the presses and linotypes, as is the custom in all first-class offices, but the *World* has gone one step further, and melts the type metal in the linotype by electrical heat.

This innovation is commended both by the executive staff and the linotype operators. The electric heating has increased the efficiency of each machine about 20 per cent, while a much better "slug" is made by melting the type metal electrically than by the older method. This is because electric heat is absolutely under control, and better distribution can be effected.

To the uninitiated the linotype machine, which costs from \$3000 to \$3500, resembles a typewriter keyboard, at which the operator sits. In response to his fingers, the type drops down, and when a line is filled, this travels to the mouth of the melting pot, where it makes an impression on the type metal. The letters are then returned automatically to their respective boxes.

Each line of type, in type metal, is called a slug, and it is of these slugs that the pages of the papers are made up. When any page is complete it is put in the "form," so-called, and at high heat and heavy pressure a "matrix" impression is

made. Because of the heavy weight which must be placed upon the forms, it is necessary that the "slugs" be perfect, and it is here that the electric melting shows to advantage. When electricity is used, the melting pot can be kept at exactly the right temperature to make a perfect mold, whereas, under the old method, the metal frequently became too hot, producing what is called a "porous slug," or one with air bubbles in it.

When one of these imperfect slugs is put under the tons of pressure used to make the matrix, not uncommonly, it breaks. In this case, the entire form has to be knocked to pieces, a new slug made and inserted for the defective one and the form locked up again. It can easily be seen that this small catastrophe might happen at most inopportune moments for a newspaper, for instance when some big story was being "rushed" to catch an edition. At best, it causes a considerable waste in the time of high-priced linotypers. Since electric melting pots were put upon the fifty-six linotypes of the New York *World*, not a single form had to be remade for imperfect slugs.

While the more perfect performance on the part of the electric melting pot wins the approval of the publishers, the new apparatus has greatly improved working conditions in the composing room. Where other than electric heat is used for the melting pot, not only does the air become very much overheated, but the fumes



The New York World Building, in Which a Private Plant Has Been Superseded by the Edison Service, a Great Office Building, and, Next to the Government Printing Plant in Washington, the Largest Printing Office in the World. Many Thousands of Lamps, High Speed Electric Elevators, More than 3,000 Horse-power in Electric Motors Alone



**Electric Melting Pot. Separate Coils Control Main Portion and Spout, so that the Correct Temperature is Maintained at the Mouth.**

from the type metal vitiate the air, so that working in this close hot atmosphere tends to cut down the speed of the machines, and finally to undermine the health of the operators. In fact, the printers' union of the New York newspaper offices maintains several sanitariums.

The electric melting pot is provided with a cover and spout and surrounded by a jacket of cast-iron lined with asbestos. A centrally arranged plunger serves to force the molten metal out of the spout in the customary manner. A number of heating

coils of a desired grouping and supported by insulators are placed in the air tight space between the melting pot and the jacket. Heating coils of high resistance are placed outside and around the insulating sleeves. The coils are divided so that the heat from one group is applied to the main portion of the pot and from the other group to the spout, so that the greater amount of heat energy is used for melting the metal and a lesser amount for keeping it in a molten condition. Heat control, provided by a thermostat, keeps the metal at the right temperature.



**Linotype Machine in the "World" Composing Room. To the Left is the Electrically Heated Melting Pot. At the Right is an Automatic Switch Which Throws on Current When Operator Takes His Seat. Invented by the Chief Mechanic, Mr George Wagner**



## An Electrically Driven Clock

**A**N electrically driven clock, which is the largest in England, has recently been completed in Leicester, England, to adorn the tower of a new building that is now approaching completion. The time-piece possesses many interesting features, especially in connection with its mechanism.

"The clock is provided with four dials, which will be set 220 feet above the sidewalk. Each dial measures twenty-five feet in diameter. Owing to the exposed portion of the clock and the heavy gales that prevail in the neighborhood of Liverpool, special attention was devoted to struc-

tural strength of the clock face. The framework of each dial is of massive iron construction, and weighs three and one-half tons. The opal glass is of great thickness, so that it may withstand a minimum pressure of eleven tons per square inch, that for each dial weighing 660 pounds. The outer circle of the dial is constructed in twelve sections, each of which measures six feet 3 inches long by five feet six inches wide. The minute spaces are fourteen inches apart. Instead of using Roman or Arabic numerals to indicate the hours, a solid black uniform mark is utilized, rendering the time readily distin-



*Pictures in this article by courtesy of the Scientific American*

**A Novel Table.** At the Completion of the Electric Clock, the Builders Invited Some Forty Guests to a Luncheon Which was Served on One of the Great Dials



One of the Dials in a Vertical Position. Instead of Numerals, a Solid Black Mark is Used Which is Better to be Seen from a Distance. Note the Figure of Man for Comparative Size.

guslable from a distance. Each of these chapters is three feet six inches in length by eighteen inches wide.

The hands are likewise of large dimensions. Each minute hand measures fourteen feet in length by three feet wide at the broadest part. They are made of copper, but to enable them to withstand wind pressure, and the forces of rain and snow, they are stiffened with a nine-inch gun metal backbone.

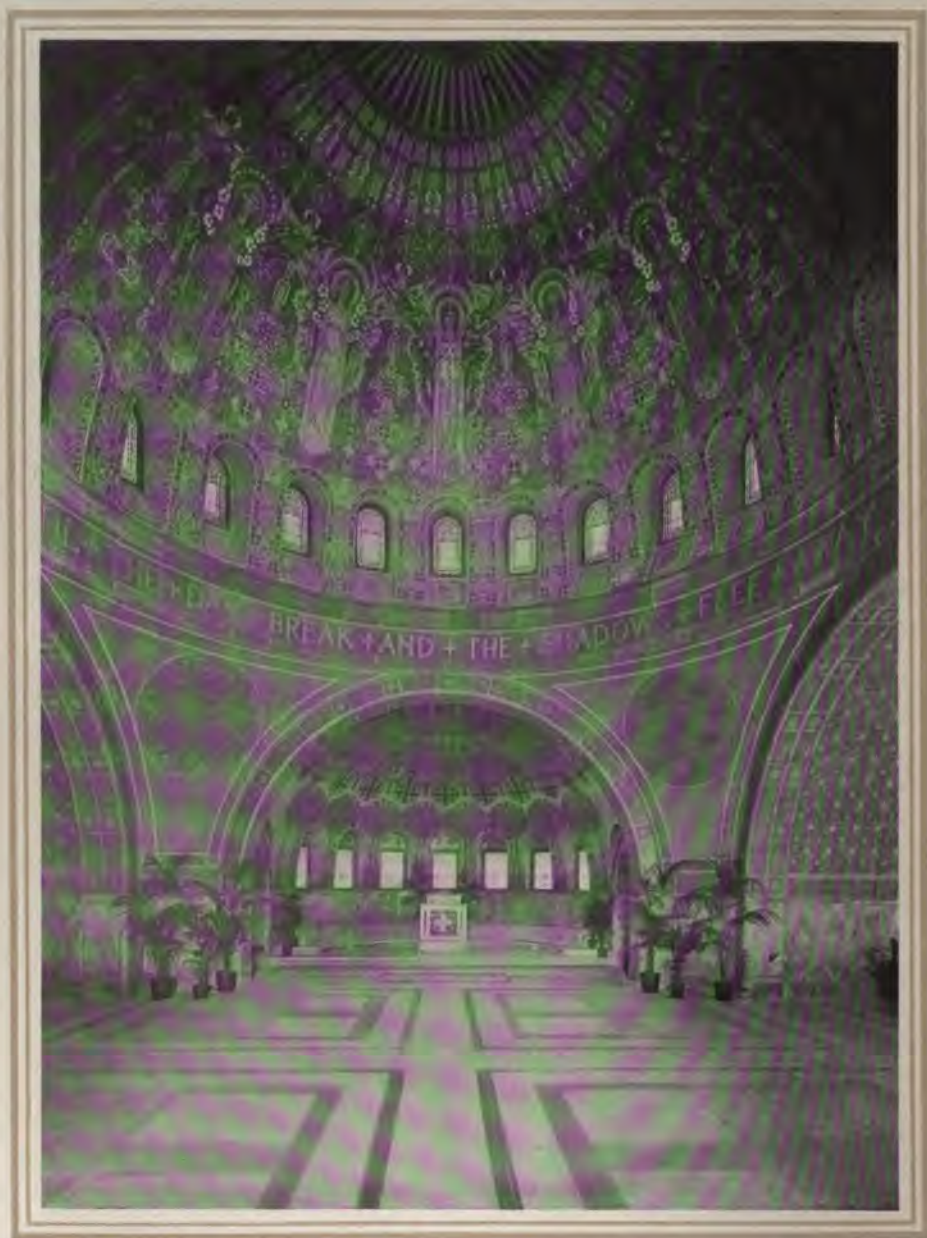
When the clock was completed the builders invited a number of friends to participate in a celebration luncheon under novel conditions. One of the large dials was supported on legs, to serve as a dining table round which some forty people were comfortably seated.

Apart from its unusual proportions, the most striking feature of this horological novelty is its driving mechanism, which is small, compact, occupies little space, and is exceedingly simple, weights and intricate arrangements of wheels being entirely eliminated. Winding is also dispensed with. The principle upon

which it is constructed is the same as that employed to drive a small dining room clock. This system is called the 'waiting train' movement, evolved by the makers, and the outstanding feature is that the time-keeping portion of the clock is disconnected from that of the hand-driving. This arrangement effectively overcomes any interference by rain, wind or snow, which might tend to retard the forward movement of the hands. The clock is driven with a practically continuous motion, but its design secures the separation of the time-keeping element of the clock from the hand-driven element with the desirable result that any untoward effect brought to bear upon the hands cannot react upon the time-keeping. *Scientific American.*



One of the Huge Copper Hands, Fourteen Feet Long, Three Feet Wide at the Base, and Able to Withstand Any Gale.



Lakewood Memorial Chapel, Minneapolis, Minnesota. Charles R Lamb, Designer. The Interior is in Enameled Mosaic, Venetian Gold and Mother-of-Pearl. Lighting is Arranged to Bring Out the Beauty of Color. Entire Interior Illuminated by Concealed Lights

# Church Illumination

**C**HURCH lighting is a branch of illuminating engineering in a class by itself. Unlike any other lighting installations, there are absolutely no governing rules or theories which apply to this type as a whole. The designing is a study in itself and each installation must be regarded as a separate problem and accordingly solved in a manner all its own. In every church the conditions governing illumination are different, a similarity existing in possibly not more than a few churches in a hundred and there arises consequently the necessity for designing original installations.

The keynote of church illumination, however, is conservatism. This must predominate to its fullest extent and be the basic principle of every church installation. The chief results to be sought after in lighting a church are rich tones, and soft pleasing effects, a blending and harmonizing of deep colors which will

be to the eye what the beautiful tones of the organ are to the ear.

All light should be as much subdued as possible, the units being hidden either by means of stained glass boxes or silk shades. The congregation sitting during the average service would become tired and out of a church frame of mind, were they to be confronted by a glare of lights.

In the old style church, with the balcony running three-quarters of the way around the inside, it is not only possible but very good effects can be obtained by using the balcony rail to



"Memory," One of the Four Figures Executed in Mosaic for the Lakewood Memorial Chapel, Ella Condie Lamb, Artist



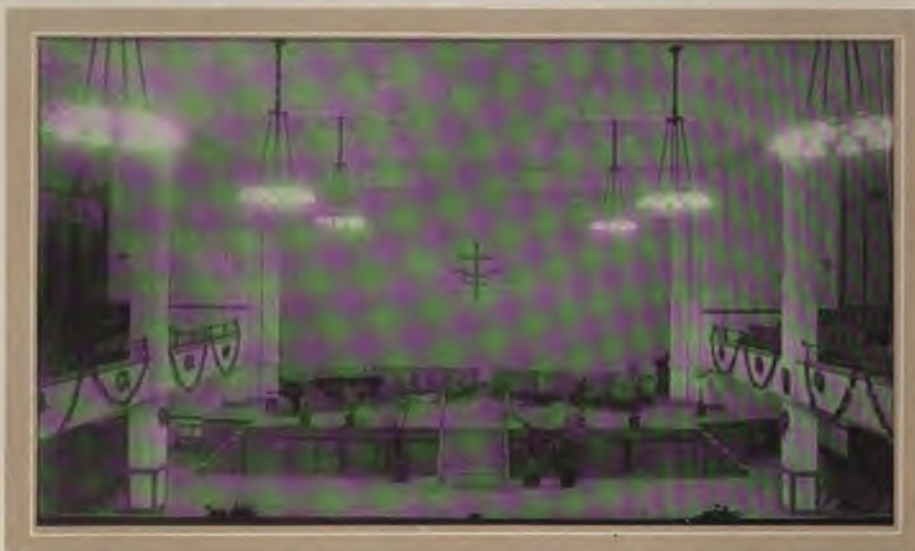
## The Edison Monthly

assist in the lighting scheme. The lights may be set into the front of the rail and cased over with stained glass, or they may be suspended or projected from brackets fastened to the balcony rail.

Where lights are desired on the side walls they may either be set into the wall or brackets may be used. The soft ground-glass flame lamps produce an excellent effect in church lighting. When large chandeliers are

artificially to light windows and in doing so has placed lights so that a spotty effect has resulted. This is overcome by using reflectors, so that the light will be evenly distributed, resembling daylight as much as possible. The result thus obtained is somewhat similar to sunlight.

Besides lighting the church itself many parishes have extended the lighting to their reading rooms, gymnasiums, schools, rectories and parish



Interior Bronx Church House, 171st Street and Fulton Avenue, Bronx. A Modern Electric Installation Supplanted a Carbon Lamp System. This Arrangement is of Highest Efficiency in Church Lighting

used it should be borne in mind that they should always be at a height where they will not come within the line of vision.

One of the most important factors to be taken into consideration in all churches is the windows. The lighting scheme can be so worked out in regard to stained glass windows that the most lovely and artistic effects are obtainable. It is often the case that the architect has endeavored

houses. For each of these a different style and scheme of lighting is used.

Among the interesting installations added during the year 1910 to the list of Edison service users is that of the Christ Lutheran Church, 406 East Nineteenth Street. The building was erected by Marc Eidlitz during the '50's and was originally owned by St George's Church.

In 1882 the property was purchased by the congregation of the

Christ Lutheran Church, the present owners, and although many of the older members have left the neighborhood and have settled uptown, the Church has continued its fruitful efforts in the place it has called home for so many years.

The Bronx Church House, located at 171st Street and Fulton Avenue, a picture of which is here given, was equipped originally with a complete carbon lamp installation. At the time the structure was completed, this method of illumination was considered ideal. Later discoveries and improvements, however, both in lamps and fixtures, having been introduced into the lighting field it became necessary to make such changes as would make the Church House representative of the most efficient lighting of such institutions.

Accordingly, extensive alterations were made. All clusters containing carbon lamps were removed and single units of the various types of tungsten lamps were installed throughout the building; fifty-watt carbon lamps used in brackets and droplights were replaced by twenty-five-watt tungsten and tantalum lamps.

With the carbon lamps the total candle-power was 3,136 and with the new installation 4,062.5 thus increasing the illumination approximately twenty nine per cent, while decreasing the current consumption about thirty-nine per cent.

"Shun the inquisitive person; for he is also a talker" - *Horace*.



Lecture Room of Christ Lutheran Church, 406 East Nineteenth Street, Where Electric Light Has Recently Been Installed. One of the Most Interesting Installations in the City. Church Built in the Fifties

"A pound of pluck is worth a ton of luck" - *James A Garfield*

"A half loaf is better than a whole loafer." - *The Cynic*.

"None are so fond of secrets as those who do not mean to keep them." - *C C Colton*.

## Drying Apparatus of the Underwriters Salvage Company

THE water-soaked goods rescued from fires by the Underwriters' Salvage Company are dried by electricity in their warerooms at 5-15 Sullivan Street. Tons of merchandise of every description, some of it partly singed from the flames and all dripping with water from the fire hose, are backed up in drays at the warerooms and for a long time it was one of the problems that perplexed the management as to how this great quantity of stuff could be dried quickly so that it could be packed away and make room for more.

During the winter, when from various causes fires are of more fre-

quent occurrence, the matter assumed such proportions that something had to be done. The ultimate outcome was the present system, which is adequate to meet all of the demands.

An entire loft is turned over to the purpose and the goods as soon as they arrive are hung in rows from front to rear on specially constructed hangers. Almost everything, from harness and hardware to silk dresses and lingerie, must be dried here.

Then the machinery is set in operation and a single day is the most time required to dry anything and everything. The machine is operated



Thirty Horse-power Electric Motor Which Operates the Drying Apparatus in the Salvage Company's Warerooms, 5-15 Sullivan Street. Enclosed Section for Heating Air in the Background



**View in Drying Room of Salvage Company. Water-soaked Effects are Hanging on the Racks Drying. Garments Made of the Most Delicate Fabrics are Dried Here Without the Slightest Damage Resulting from the Process.**

by a thirty horse-power motor supplied by Edison current. This runs two monster fans, one of which forces the air through a maze of vertical steam pipes, where it becomes heated and then forces it on its way into a gallery that runs the entire length of the loft.

From these openings the air is distributed into the room with sufficient force to send it to the remotest corner. The other fan creates a suction which draws off the damp air through a gallery at the bottom of the room, on a level with the floor. Thus there is a continual circulation of air, the heated air being forced in at the top and the air laden with dampness being sucked out at the bottom. The temperature goes up within a few minutes after the motor is set in motion and continues to go up until the loft becomes uncomfortably warm. The floor of the drying room is covered with galvanized iron, ren-

dering it to proof, and also making a perfect drainage system. One of the accompanying photographs was taken a short time after a large quantity of miscellaneous dry goods for the most part flannel underwear had been hung on the drying racks. Running across the back of the room, from the middle end can be seen the box that runs through which the air circulates, the one close to the floor being the suction pipe and the one higher up on the brackets the one through which the heated air is drawn into the room.

The other picture shows the thirty horse-power motor and at the extreme right one of the large ventilating pipes which terminate on the roof. In the background can be seen the section where the air is heated. This is entirely enclosed by sheets of galvanized iron and contains hundreds of steam pipes arranged vertically, between which the air is forced



## Pneumatic Tube in the Custom House

**T**HE longest pneumatic tube in New York and probably the longest one in the world is operated by an electric motor. It connects the New York Custom House at Bowling Green with the

Appraisers' Stores and vice versa. Previous to the middle of January, when the tube was placed in service, half an hour was required to get mail from one of these Government institutions to the other, a number of



**The Seventy-five Horse-power Electric Motor in the Basement of the Custom House Which Supplies the Power to Operate the Longest Pneumatic Tube in the World**

Appraisers' Stores, at Washington and Christopher Streets, the intervening distance being more than two miles. As there are two tubes, one for going and one for coming carriers, the total length of tubing is 23,010 feet, or approximately upwards of four miles.

The purpose of the pneumatic tube is to hasten the transfer from the Custom House mail to the Ap-

praisers' Stores making regular hourly trips. Now mail is placed in one of the carriers at either the Custom House or Appraisers' Stores and in four and a half minutes it is at its destination. The round trip can be made by a pneumatic carrier in less than ten minutes, whereas a boy, going by the Ninth Avenue elevated, took an hour or more.

The rate of speed of the tube car-

riers is approximately twenty-seven miles an hour, and it can be still further accelerated by increasing the air pressure in the tubes. Twenty-seven miles an hour, however, is considered ample speed to handle all of the Custom House business, even at the most rushed period.

What might be called the most interesting features of the pneumatic tube are the sending and receiving

a moment more released, when it slides out onto a tray with very little force.

The sending device or transmitter also bears a certain similarity to an airlock. The carrier is dropped in, the first air gate opening to let it pass. It pauses at the second air gate until the first one closes and then proceeds on its course. After a carrier has entered the transmitter



**The Large Blower at the Custom House and Part of the Tube. The Blower, Which Looks Like Some Types of Furnaces, Forces Air in Two Miles of Tubing. Another Fan is at the Appraisers' Stores**

devices. It can easily be imagined what devastation would be wrought were a projectile weighing in the neighborhood of thirty pounds shot out of a tube into a room at the speed of a railway train. To meet the situation a receiver, similar in principle to an airlock in a tunnel, has been placed at the receiving end of each tube. A carrier is automatically stopped in this receiver and in

automatically locks for fifteen seconds so that another cannot be placed too soon.

The carriers are made of galvanized iron with leather packing rings at both ends and a leather buffer at the bottom. They measure eight inches in diameter and stand two feet high. The weight when empty is twenty pounds and when loaded from thirty to forty pounds.

## Evolution of Street Lighting in New York

**S**TREET lighting is one of the oldest of the municipal arts. While systematic public illu-

mination making any pretence to beauty or brilliancy is of recent date, the first mention of street lighting occurs in the city records in the early years of Peter Stuyvesant's administration, while street lamps at public expense were erected in 1762. From that date to this, with occasional periods of inaction, the lighting of New York City has been developed, till at the present time there are more than 4,000 lampposts of the most approved design in Manhattan alone.

The first street illumination, begun in 1658, was somewhat peripatetic, since each house was taxed to provide for the lights car-

ried by the famous "ratel watch." Even then there were certain touches of modernity in this primitive or-

ganization of the municipal department. The Sheriff in charge was openly called "the officer of the graft," and the rules for the watchmen required that "if any man receive a fee he shall deliver it unto the captain." However, it should be explained that the "graft" controlled by this early Sheriff was the old canal in Broad Street.

Those were stern reform days under Governor Stuyvesant. At the same time that street illumination was initiated, street cleaning also was not



Bronze Electric Lamp Standard, Seventy-second Street and Riverside Drive, Presented by the Colonial Dames of America. Mr Allen G Newman, Sculptor

neglected. A city ordinance required that the roads should henceforth be kept passable and that pigs should no

more be allowed to root at large in the thoroughfares, but should be properly attached to their owners' premises by means of the nose-ring

Furthermore, the men of the "ratel watch," besides carrying lanterns, had to prove their efficiency as guardians of the peace by demonstrating their ability to fire a musket. To eliminate waste of powder, this ceremony was performed but once a week, and to avoid accident, the new members of the force were ordered to go down to the river bank for this practical civil service examination.

Not until 1762, however, were stationary street lamps set up at public expense. In the same year the merchants of the town decided to place a lighthouse on Sandy Hook, and the funds for this manifestation of public spirit were raised by a lottery. So little, though, did the citizens treasure the new street lamps that in the year 1763 they expressed their indignation and wrath over the Stamp Act by wrecking every street

lantern that they saw on their way.

Two types were general in this early day. In one the lantern hung from a horizontal stick at right angles to the upright post, while in the other the lamp rested directly on the top of a tall pole. Unpromising as both of these forms were they have proved capable of development. The modern "lyre" style, so-called, is the direct descendant of the bare unsightly post, while both the graceful "mast arm" and "Bishop's crook" are derived from the other early form.

By 1840 these styles had been discarded for the square boxed in lamp, which has remained typical for many years and which may still be seen in side streets of the tenement regions. There is a short arm just beneath the globe which suggests the sinister part these

lamps played during the Draft Riots in 1863. Tradition has it that two of the lampposts from which negro victims were hanged still stand in the West Side district, near Thompson



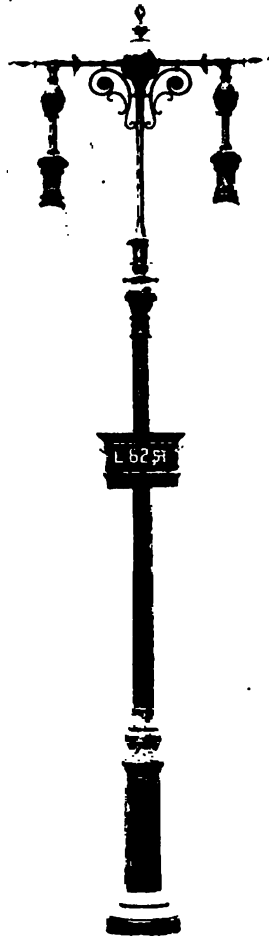
"Bishop's Crook" Lamppost



## The Edison Monthly

and Carmine Streets. Tenement youngsters of the present day, however, have found a healthier rôle for these old fixtures. When once the

there are some three thousand of the "Bishop's crook," while a bracket form of this has been devised, for special use against the wall of any



Twin Lightposts. Street Sign  
and Lamppost Combined



A Lyre Type  
Lamppost

glass shade has been broken, as it immediately is in those districts, the iron framework serves as a goal post for stirring games of basket-ball played upon the streets.

Of the approved styles now in use,

building. In about a thousand of the new style posts, the street signs have been successfully combined with the lighting standard, an arrangement highly to be commended, since the first principle of good street archi-

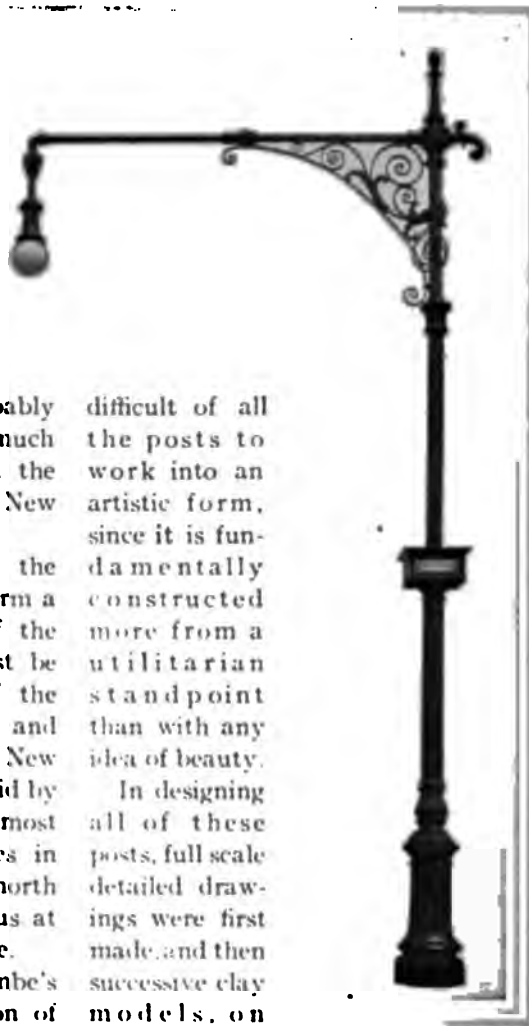
ture requires that the sidewalks shall be as little cumbered as possible. The four thousand odd lamp posts designed for beauty as well as utility, represent a replacement of at least 12,000 of the unsightly standards, since one of the modern electric lights has the efficiency of three of the old ones. Probably no city in the world has had as much care and thought bestowed on the design of arc-lamp posts as has New York of recent years.

Its posts are unexcelled by the finest in the Old World and form a standard for all future work of the kind in this country. It must be placed chiefly to the credit of the city's Chief Engineer of Light and Power, Mr C A Lacombe, that New York can now boast of what is said by experts to be the finest and most artistically lighted thoroughfares in the world—Seventh Avenue north of Central Park to its terminus at Central Bridge being an example.

As the outcome of Mr Lacombe's careful study and investigation of the needs of this avenue two of the arc-lamp posts, mentioned in this article, were especially designed to meet the demand, namely, the "mast-arm" and lyre-top types. The design for the lyre-top standard was evolved from a number of photographs of posts in use in Continental cities. Before arriving at the desired effect the proportions and outlines were changed many times until the post as it now exists was the result. The "mast-arm" was, perhaps, the most

difficult of all the posts to work into an artistic form, since it is fundamentally constructed more from a utilitarian standpoint than with any idea of beauty.

In designing all of these posts, full scale detailed drawings were first made, and then successive clay models, on which necessary changes were worked out. The completed models were set in the required position on the street and the effect was then studied to the minutest detail to make sure that the design was right and to obtain the correct perspective. To assist in this part of the work the services of the most noted modelers and lighting authorities in the city were secured.



**A Mast-arm Type.  
An Artistic Street  
Sign and Lamppost**

## Concerning Electric Vehicles

**I**N addition to holding the World's Record for mileage on one charge of a battery, made in Cleveland in November, 1910, under official observation, when  $244\frac{1}{2}$  miles were covered at a speed of  $12\frac{3}{4}$  miles per hour, a Baker electric pleasure vehicle made another run of more than two hundred miles early in the summer of 1910. What will probably prove of greater interest to local readers, however, are the runs which were made in New York and vicinity with this same stock car equipped with the standard Edison Battery.

In all, four runs were made to local points, there being in each case two passengers in the car. One trip was to Trenton, N J, and totalled over one hundred and eighty miles before the battery was discharged. Another

run was to Somerville, N J, and another to Babylon, L I, in the latter expedition the car covering more than one hundred and seventy-two miles before the battery was discharged.

Perhaps the most noteworthy test of the four was a run to Bernardsville, N J, in which two cars traversed the hilly part of New Jersey. Before the batteries were discharged on this run the mileage recorded was one hundred and fifty and one hundred and thirty-seven. The average mileage made on all four runs was one hundred and fifty-nine and nine-tenths. Only a short time ago it was considered a very great deed for an electric to accomplish the run from New York to Philadelphia on a single charge of the battery; Philadelphia is about one hundred miles from here

and in comparison with any of the runs above mentioned the run there sinks into insignificance.

Although the run from the Quaker City is no longer a great distance feat for an electric there still remains much to be achieved in cutting down the time required. Under the most



Type of Baker Electric Which Holds World's Record,  $244\frac{1}{2}$  Miles on One Battery Charge. Average Speed  $12\frac{3}{4}$  Miles per Hour for Entire Trip

adverse conditions, through mud six inches deep in many places, a Waverly Roadster, a stock car, equipped with an A-6 Edison Battery, made this journey, arriving at the automobile show in Madison Square Garden five and one third hours after leaving Philadelphia. Most mileage records in electrics are made at low speed and over smooth roads. The attempt in this case was not to make a mileage record, for the current in the battery was not exhausted when the trip was ended. The idea was to duplicate the performance that might be expected of a big touring car under unfavorable road conditions.

One of the most striking evidences of the present day of the automobile superseding the horse-drawn vehicle for pleasure is the filing on Feb 4 in the United States District Court of a bankruptcy petition against the largest Eastern concern dealing in fancy horses, the Tichenor Grand Company, of 124 West Fifty-sixth Street.

Proceedings have been instituted by three petitioners to declare the firm involuntary bankrupts for the amount of \$1,000, and District Judge George C Holt appointed Robert C Howard temporary receiver.

The failure of the Tichenor Grand Company

and of several other large horse concerns is generally believed to be due to the automobile crowding them out. It is not the policy of the *Edison Monthly* to speak of a business failure as an affair over which to rejoice; however, to let pass unnoted so important an indication of a commercial evolution would be unfair to our readers.

The daily papers carry stories in almost every issue of explosions in garages where inflammables are stored. During the month of January an explosion took place in a garage at 23 Cranberry Street, Brooklyn, as the result of the ignition of vapors. Half a dozen persons were injured. The fire that resulted ruined the building and partially destroyed thirty valuable automobiles stored there. Another instance illustrating the superiority of electric vehicles from a standpoint of safety was the recent blowing up of a gasoline delivery wagon on Fifth Avenue.



700-Pound Delivery Wagon Made by the General Vehicle Company  
One of the New Models Brought Out at the Automobile Show





The Valve Grinding Tool in Operation. It is Not Necessary to Remove the Motor Hood to Grind the Valve With This Tool

### An Electric Valve Grinding Tool

WITH the tremendous growth of the automobile industry in the last decade there has come to be felt more and more each year the necessity of a device that would expedite and at the same time alleviate the manual labor in grinding motor-car valves. The automobile owner who has attempted the task of grinding his valves with the ordinary tools made for that purpose will be able to appreciate fully the great worth of an electric tool which practically dispenses with the drudgery of this occasional duty.

The Valve Seating Tool Company of Southport, Conn, recently put upon the market their so-called "Pioneer" line of electric valve grinding tools, adapted to any four-cycle internal combustion motor,

steam engine or compressor employing poppet valves, any form of globe valve or air or gas cock.

These tools take the place of hand labor in grinding valves requiring periodically to be seated and are also used for various other work when equipped with a combination head, which enables the operator to obtain either an oscillatory or rotating movement at will.

The illustration shows the portable electric valve grinder in the hands of an operator who is applying it to the valves of an automobile motor. It can be used for this purpose without even removing the bonnet.

The electric valve grinder has recommended itself especially to the suburban automobile owner who keeps his car in his own garage, caring for it himself.

### Electric Industrial Trucks

IT has only been quite recently that there has been any active attempt to design anything strictly practical in the line of industrial trucks. Some of the railroads, notably the Pennsylvania, have for some time been experimenting with, and using, storage battery trucks for handling packages, freight and mail. Twelve electric hand trucks with double-end control were constructed a short time ago at the Altoona shops for use at the new Washington railway station.

These proved very successful and resulted in a material improvement in the handling of mail and baggage, and it was therefore decided to construct twelve more of the same general design but of much larger capacity for use in Jersey City. A large installation of the newest type are also in use in the Pennsylvania Terminal and Grand Central Station, New York.

Mail and baggage are as a rule transferred over the same platforms used by passengers, and the old style hand trucks, without brakes or other safety appliances, were becoming more dangerous as the passenger traffic increased. To be practical the electric industrial truck must embody double-end operation, easy steering, stability, flexibility, easily operated brakes and the minimum projection of the hub beyond the side of the truck.

The Hamburg-American Line, among others, has been experimenting for the last year or two with several different styles of Lansden industrial trucks, and recently adopted a three-wheeled machine, with a speed of four miles an hour and capable of carrying 5,000 pounds. Four of these trucks have averaged a displacement

of five men each. This means that the services of twenty longshoremen have been dispensed with in this work and it is stated that one man with a truck will actually handle more freight than could have been handled by six men with the ordinary type of hand truck. The Lansden Company is making these in three different styles.

## Wanted—an Electric Automobile Agency

WITHIN the last year no less than four electric vehicle manufacturing companies have established agencies in New York City. On January 23d this Company received a communication from a fifth electric manufacturer asking this Company to suggest a suitable agency to take care of its business. These are significant indications of the growing popularity of electric cars in New York City.



Lansden Industrial Trucks in Use by the Hamburg-American Line  
A Man with One of These Can do Six Men's Work with Hand Trucks

## Electric Cooking for the Navy

**I**NTEREST in possibilities of electric cooking has been raised once more by the action of the Equipment Bureau of the Navy Department in recommending electric ranges for future use on battleships. This was done as the result of a series of tests in which electric cooking proved not only better and more convenient than by coal, but also slightly cheaper for use aboard ship.

This is an extremely interesting contribution to the discussion of electric cooking, which has not so far become cheap enough to be introduced on a large scale in the ordinary homes in this city. While small articles, such as chafing dishes, toasters, percolators and so on can be recommended conscientiously by the central station that wishes to serve its customers, heating departments are apt to hesitate before the electric range.

Battle ship conditions, however, show the electric range to great advantage. Its clean-

liness, the elimination of coal dust, and the space saved by the absence of coal bins are considerations of weight to naval architects. This report by the United States Government officials is being copied with favorable comment in foreign magazines, which suggests that the same trial may be made abroad.

The points for the electric range in the Government tests are: cleanliness, economy of time, economy of space, elimination of draught troubles, elimination of soot accumulation, and of excessive heat in the galleys, and a little greater economy of operation.



Electric Cooking and Heating Demonstration in the Office of the Yonkers Electric Light and Power Company. On the Table are the Small Devices Now Becoming so Popular





Cooking and Heating Demonstration. Irons Office of The New York Edison Company. Electrically Lighted Flower Basket, Toaster and Percolator on the Table. To the Right Electric Flatiron

The range under test had been in daily use since its installation, and all kinds of work that a ship's stove would be called upon to perform were accomplished by the electric range under test. A specific trial was given the top surface in the matter of frying potatoes. Fifteen minutes after turning on the switch a temperature of  $340^{\circ}\text{C}$  was recorded on the top of the range. Eggs were scrambled, various foods fried, and, in fact, all manner of cooking that a range would be called upon to perform was successfully done on this heating surface. With all of the units on top of the range in operation for forty-five minutes the consumption of electricity recorded was six and one-half kilowatt hours.

Eighty pounds of steak, sufficient for one hundred and fifty men, was broiled in the broiler with excellent results, the steak being tender and juicy. A test of roasting beef in the

oven was made. Forty-three and a half pounds of beef were placed in the oven and in fifty-five minutes a temperature of  $250^{\circ}\text{C}$  was obtained. The meat was thoroughly cooked in two hours and twenty five minutes and was delicious. The uniform distribution of heat was said to have produced superior results.

Tests as to relative economy of operation were made, the current used and the weight of coal burned being recorded. Two roasts of equal size, shape and weight were cooked in the electric and coal-burning range:

	ELECTRIC	COAL
Quantity of beef	10 lb.	10 lb.
Time required to obtain necessary temperature	50 min	2 hr 25 min
Time required for roasting	1 hr 40 min	2 hr 20 min
Electricity consumed	7 kw hrs	Coal consumed 41 lbs



## Electricity at the Child Welfare Exhibit

IT will undoubtedly be of interest to the readers of *The Edison Monthly* to know that electricity lighted and, to a considerable extent assisted in the management of, the Child Welfare Exhibit. In addition to the sixty-seven five-ampere arc lamps which compose the permanent lighting installation of the Seventy-

first Regiment Armory, where the Child Welfare Exhibit was held, there were installed for the occasion four hundred and twenty-five sixteen-candle-power incandescent lamps in reflecting hoods, and two hundred and forty four-candle-power lamps for lighting the individual exhibits.

One of the most notable features

was the use of the stereopticon slide to depict more vividly and impress upon the people to its fullest extent the lesson which the Exhibit was intended to teach. Besides a regular moving picture machine which was also used to show stereopticon views, there were two automatic stereopticon machines which by a clever mechanical contrivance continually changed the pictures on their ground - glass screens. Each one of these machines carried



Model Dental Equipment at the Child Welfare Exhibit to Emphasize the Importance of Caring for the Teeth. Nearly Everything in Modern Dentistry is Accomplished by the Aid of Electricity

a series of several hundred pictures and was quite a lecture in itself. To operate the stereopticon machines something like two hundred and thirty five amperes were required.

Then there were five two-ampere "Reflectorscopes" which are similar to the automatic stereopticon machines in that pictures are thrown on a screen from the inside. Nothing can bring to the mind so poignantly the dreadful conditions actually existing in our own city, which it is the object of the Child Welfare Exhibit to obliterate, as this collection of picture machines did.

In one of the corners of the great building was an interesting booth containing the model school dental clinic. Every appliance was the most modern and the majority of them were electrical. The object of this exhibit was to show the necessity of properly caring for the teeth. Another booth where electricity played an important rôle was the model infants' milk station, sixty of which are about to be opened in New York City. Nothing but electric stoves were used here for cooking infants' food on account of

their cleanliness and even distribution of heat on the surface.

## Electric Theatre Signal

THE Gaiety Theatre, of Manchester, England, has been fitted up with a new system of electrical signaling. An automatic switch is connected with the drop curtain, and the fall of the curtain lights a



Infants' Milk Station, Child Welfare Exhibit. Showing Use of Electric Stoves to Cook Infants' Food and Boil Water. Sixty of These Stations are to be Opened in New York Next Summer

red signal lamp in the offices and in the bars. The manager, sitting at his desk, knows exactly how the play is proceeding, when the interval is on, how long and also the number of curtains received for each act. The public at the bars are also aware, on the disappearance of the red light, that the curtain is up.—*Electrical Review and Western Electrician*.

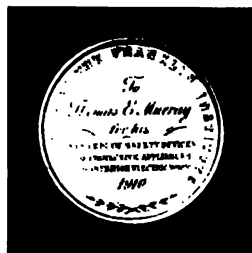
## The Edison Monthly



### A New Protective System

**A**BSOLUTE security in the transmission of electrical energy is demanded in the supply of electric current. Nothing could be more harmful to the industry nor so completely retard its development as a feeling of insecurity where

electricity is used for light or power. The last degree of protection has now been afforded in a series of inventions by Mr Thomas E Murray, to whom the Edward Longstreth Medal of Merit has been recently awarded by the Franklin Institute. There is no higher recognition of worth, and the electrical industry, as well as Mr Murray, is to be



Medal Awarded to Mr Thomas E. Murray Reverse



Obverse Side of Medal

congratulated upon this evidence of appreciation of the usefulness and completeness of his methods.

This system of safety devices and control, beginning at this service, does not end until the final connection to the smallest circuit has been made. When recalling that this system is covered by some fifty patents one can begin to realize something of the work as well as the inventive genius its development has involved.

The entire enclosure of conductors is provided. At no point is it possible to make contact with them. Not only are they moisture, dirt and dust proof, but they afford absolute security for control and protection where, as in garages, the presence of explosive or inflammable vapor is possible.

One series of these inventions is designed to protect the company against the theft of current. Not only is there a unique seal, which cannot be tampered with, but the complete enclosure of the conductors makes any surreptitious connection absolutely impossible.

Another very commendable feature is the reversible fuse and switch. In simply removing the fuse from the block, turning it around and replacing and sealing it, the current is absolutely cut off from the installation. This is especially desirable for frequent connection and disconnection, as in apartments, making it unnecessary to carry fuses back and forth, and insuring, once determined and placed in position, the continuous use of a given size of fuse.

The combined metering and panel switchboard possesses many unique

and valuable elements. One is the complete enclosure of all electrical parts. Another, the arrangement by which any office or room or number of rooms can be grouped for metering purposes, as often as desired, without change in the wiring. The change can be accomplished in a few minutes, whereas formerly a large amount of rewiring was necessary at considerable expense.

Indicating the immediate appreciation of this system, it has been installed in the new Peoples Gas Building in Chicago, most complete and modern in every respect and the second largest office structure in the world. One result has been a degree of flexibility in arranging offices in different combinations for renting which, without many and expensive changes in conduits and wiring, would not have been possible in any other manner.

## Electric Appliances Now Sold by East Side Pushcart Peddlers

NOT alone in the electrical section of our great department stores are electrical supplies now to be purchased, for another field has been opened, which, although it gives no promise of rivaling the former, bids well to develop into something of consequence along its own line. A number of pushcart merchants in Rivington Street have embarked their fortunes in the electrical supply business and have loaded their cars with sockets, batteries, flexible cord, wire and other articles of similar nature.



## WIRING AND INSTALLATION CONTRACTORS

### West of Broadway and Fifth Avenue

Amsterdam Ave 452—C A Christesen  
 Amsterdam Ave 648—H Blumstetter  
 Broadway 237—Electric Cons & Supply Co  
 Broadway 335—Park Sullinger  
 Broadway 379—J S Bihin  
 Broadway 593—E W Hirsch  
 Broadway 725—L F Benn  
 Broadway 1170—The Chas L Eidlitz Co  
 Broadway 1265—S W Electric Co  
 Broadway 2382—H S Beidleman  
 Broadway 2742—H Reinwald Jr  
 Church St 50—L K Comstock & Co  
 Columbus Ave 220—T F Carr & Co  
 Columbus Ave 330—C T Pinkham & Co  
 Columbus Ave 549—Hoffman & Elias  
 Columbus Ave 649—E Craske  
 Cortlandt St 26—Cleveland & Ryan  
 Cortlandt St 39—Blackall & Baldwin  
 Cortlandt St 39—Berg & Co  
 Cortlandt St 84—Bleye Elec Co  
 Duane St 172—Jas F Hugh Co  
 Eighth Ave 2719—Frankline Elec Co  
 Eighth Ave 2527½—M Kohosoff  
 Fifth Ave 65—L A Whitney  
 Fifth Ave 75—H M Walters  
 Fifth Ave 503—Flucker & Keedwell  
 Fifth Ave 571-573—Hatzel & Buehler  
 Greenwich St 183—Thomas & Johnson  
 Greenwich St 207—F A Frey  
 Greenwich St 255—F C Ross  
 Hudson St 660—Edw S Eaton  
 Sixth Ave 110—J V Johnson  
 Sixth Ave 617—Zenker & Siems  
 Sixth Ave 780—C C Bohn Electric Co  
 Sixth Ave 873—John W Flint  
 Seventh Ave 192—Emil Christensen  
 Seventh Ave 727—Conduit Wiring Co  
 Seventh Ave 2290—Nathan Zolinsky  
 Thames St 27—Watson Flagg Eng Co  
 Thames St 27—McLeod Ward & Co  
 Varick St 132—Eugene P Etzel  
 Warren St 73—J P Hall  
 Warren St 96—Wm F Duffy  
 Warren St 96—Independence Electric Co  
 West St 116—Knickerbocker Electric Co  
 West St 463—Western Elec Co  
 West Broadway 430—J H. Roberts  
 West 14th St 130—The Electrical Contracting Co  
 West 17th St 156—Harry A Hanft  
 West 21st St 35—W J McClure & Co  
 West 26th St 54—Louis Freund  
 West 27th St 20—Payne Hayden Co  
 West 28th St 11—Thos L Dillon  
 West 29th St 15—Dennis G Brussel  
 West 30th St 110—Tucker Elec Con Co  
 West 30th St 111—Jandous Elec Equip Co  
 West 33d St 209—E J Elec Installation Co  
 West 34th St 45—Peet & Powers  
 West 38th St 72—A J Buschman Co  
 West 42d St 25—Russell Electrical Co  
 West 42d St 29-33—Germond & Turner  
 West 42d St 112—Oberg Blumberg & Bleyer  
 West 45th St 100—F A Bohling  
 West 49th St 422—Frank Pisch  
 West 61st St 120—J L Moriarty  
 West 72d St 176—T J Kaufman & Co  
 West 111th St 147—Mariposa Electric Co  
 West 116th St 227—Lewis S Davis  
 West 135th St 114—Nathan Zolinsky  
 Wooster St 12—Dorbrow & Hearne Mfg Co

### East of Broadway and Fifth Avenue

Beekman St 1—Elec Motor Insp & Rep Co  
 Beekman St 74—Jordan Bros Inc  
 Broome St 105—B H Weinberg  
 Cedar St 16—Wm Truswell & Son  
 Centre St 60—D S Holcomb

Dover St 8—E W Hazazer  
 East 7th St 138—H A Schreiber  
 East 9th St 65—George D Beinert  
 East 9th St 51—B W Sandbach & Co  
 East 22d St 27—Hunt & Morgan  
 East 22d St 113—J Livingston & Co Inc  
 East 23d St 10—Porsth Elec Co  
 East 23d St 42—Kimball Elec Construc Co  
 East 23d St 145—Bateman & Miller  
 East 25th St 122—Isador Fajans  
 East 28th St 114—Burkart Elec Co  
 East 30th St 13—Geo H Shuman  
 East 37th St 207—Reis & O'Donovan  
 East 42d St 39—Edwards Elec Con Co  
 East 42d St 45—Cowden & DeYoung Inc  
 East 55th St 147—Morris Levi & Co  
 East 57th St 426—Behlert Elec Co  
 East 59th St 57—Stanley & Ruth  
 East 72d St 167—E J Dushman  
 East 77th St 440—Edw Zenker  
 East 85th St 204—J E Woelfle  
 East 88th St 176—M Strompf  
 East 125th St 13—L L Strauss  
 East 125th St 31—Leo S Stern  
 East 125th St 77—Peter Jansen  
 Frankfort St 26-30—J F Bidstrup & Co  
 Fulton St 44—E Klein & Bro  
 Fulton St 96-98—Fulton Electric Co  
 Gold St 29—Mfrs & Inventors Elec Co  
 Gold St 82—Naumer Elec Co  
 Grand St 209—Nathan Klein Co  
 Grand St 235—Joseph Waintrob  
 Great Jones St 5—Bolton Elec Co  
 Great Jones St 38—Geo Weber & Bro  
 John St 52—Alfred Whiteley  
 Liberty St 120—Edward B Stott & Co  
 Liberty St 123—G Curt Kastner  
 Liberty St 126—S Arthur Brown  
 Madison Ave 314—Nimis & Nimis  
 Madison Ave 1122—F W Cohn  
 Park Ave 103—Stehlin-Miller-Henes Co  
 Park Ave 1630—Guarantee Electric Co  
 Park Ave 1955—Blackman & Guttman  
 Pearl St 59—Oswald Elec & Eng Co  
 Third Ave 221—Maurice Young  
 Third Ave 670—Silverman Bros  
 Third Ave 1021—E Kalkan  
 Third Ave 1890—Parker & Cooley  
 Wall St 2—Edwin C Gee  
 Wall St 71—Fleck Co M F  
 Wall St 99—Chas Davidson

### Bronx

Baker & Fox—313 E 141st St  
 Bogan Irving A—4192 Park Ave  
 Evans & Kaestner—893 Intervale Ave  
 Hinners F J Jr—585 East 135th St  
 Israel & Co—450 East 148th St  
 Kips John & Co—161st St and 3d Ave  
 Kirschhoff C Arthur—584 East 163d St  
 Landy Jacob—673 Elton Ave  
 Mangam H I & Co—333 East 162d St  
 Ross E L—356 East 138th St  
 Schwarzler & Co—460 E 167th St  
 Vielberth Jos F—1243 Taylor Ave  
 Wienecke Louis—893 Faile St  
 Woods Lewis H—2355 Jerome Ave  
 Wortsman D—1707 3d Ave

### Yonkers

Excelsior Gas & Elec Fixture Co—42 Warbur-  
 ton Ave  
 Imrie & Underhill—Bronxville N Y  
 Intervale Electric Co—12 N Broadway  
 Nugent A W Co Inc—5 Dock St  
 Seaboard Elec Co—12 N Broadway  
 Westchester Elec Equip Co—34 N B'way

# The Edison Monthly

April

1911

## C O N T E N T S

VOLUME III

NUMBER II

	Page
Editorial - - - - -	314
Signs along Broadway - - - - -	317
Tel-Electric Developments - - - - -	320
Electric Shine - - - - -	321
Madison Square Park at Night - - - - -	322
The Electric Dumb-Waiter - - - - -	324
The Electro-Cardiograph - - - - -	327
Electricity in Cigar Manufacture - - - - -	329
Mattress Making by Electricity - - - - -	332
Concerning Electric Vehicles - - - - -	334
Electrics in St Louis - - - - -	336
Electrics in California - - - - -	337
Electrics in Berlin - - - - -	337
Electric Flat-Iron Devices - - - - -	338
Electricity in the Household - - - - -	340
Illumination for Advertising - - - - -	343

Copyright 1911, by The New York Edison Company

# Editorial

## *The Edison Monthly*

Published by

*The New York Edison Company*

General Offices

55 Duane Street New York City

President

MR ANTHONY N BRADY, 54 Wall Street

Treasurer

MR JOSEPH WILLIAMS, 55 Duane Street

Secretary

MR LEWIS B GAWTRY, 4 Irving Place

It remains for the two extreme seasons of the year, Winter and Summer, to present the strongest arguments for the use of electric trucks. While power-wagon manufacturers have been calling attention to the undesirability of horse-trucking in January and July, for several years, this season is notable for the fact that spontaneous public opinion seems to have reached the same point.



The issues of the daily newspapers after the last storm presented strong evidence of this. In nearly every paper there was some comment contrasting the sufferings of the over-worked horses, with the triumphal progress of the power-wagon. Serious and worthy commercial journals dwell upon the financial aspects of the situation and emphasize the importance of the non-interruption of business, while the newspapers catering to the "masses" appeared with headlines such as "Shoot 25 Horses After Falls on Icy Pavements." Different as is the treatment of the subject, both styles of discourse make

the same point, which is that motor trucks are needed in Winter weather. Incidentally, earlier in the season, one paper printed a list of minor traffic catastrophes occasioned by a snowstorm. In this number, only one motor vehicle was mentioned, and it wasn't an electric.



Recent orders given in the Company's show-room point to the fact that American made electrical devices certainly equal, if they do not excel those obtainable abroad. Within the last few weeks there came a request for electric stoves to be used in England. This was followed a few days later, by an order from a visiting English nobleman, for electric toasters, some to be used in his London residence, while another was dispatched to his country house.

In contrast to this, there are the catastrophes reported every day from the use of lamps and stoves. Not so long ago an exploding lamp caused the death of five Slovaks in a little town outside of Wilkesbarre. Theoretically, we all believe the old proverb anent the relative worth of prevention and cure, but we frequently don't live up to our convictions, until too late.



The business value of proper ventilation is coming more and more to be recognized. There was once a myth among employers that they

did not pay for illness among their employees. Because those on sick list perhaps received no pay, or because the factory was on a piece-work basis, owners once on a time imagined that ill-health meant no loss to them.

But it is now realized that the period while the man drags around "half sick," either following or preceding an illness, is one of loss to the employer; even on the piece-work system, although the individual operator is paid only for what he does, the owner must remember that he has there an expensive plant which is not producing up to its fullest extent.



The value of the motor drive in reducing sickness among workers cannot be denied. In the Government Printing Office in Washington, since the old shafting and belting was removed to give place to individual motor drive, the sick list has been decreased fifty-nine per cent.

Where electric current is used for power, there is less noise and dust, vibration is reduced, while the amount of light and air available is largely increased. The elimination of shafting and belting also tends to lessen the nervous tension of factory work, an element most important where women operators are employed.

The owner who fails to provide for the health of those dependent on him, is not only inhumane; strictly as a business matter, he is short-sighted. Many years of practical rather than strictly statistical study of the situation brings about the conclusion that the introduction of

motor drive, with the elimination of shafting and belting, will give an increase in efficiency of from ten to fifty per cent, depending on conditions in the individual workshops.



It is frequently true that improvements in machinery and industrial equipment are accompanied by an equal benefit for both capital and labor. The apparatus which enables the employer to increase his output very likely adds to the comfort or working capacity of the employee.

A case in point is that of the cigar factory described in this issue, in which Edison service was installed not only on account of lessened cost of operation, but also because the engines formerly used occupied too much space. In place of this cumbersome apparatus there are now motors suspended from the ceiling.



In the book "Women and The Trades," prepared as the result of a year's work on the Pittsburgh Survey, the author, Miss Butler, gives as one of the most undesirable conditions among the tobacco workers of Pittsburgh the fact that to lessen rentals men and women were kept at work in the rooms in which the tobacco was drying.

Where space is saved by the most efficient arrangement of machinery it is not necessary to economize in this fashion at the expense of the workmen. In the up-to-date motor-driven cigar factories this crowding of workers in the same room with the drying tobacco, is avoided.



*Original Etching by Horter*

Riverside Viaduct near 129th Street

## Signs along Broadway

**I**T was a group of American tourists who, after many weeks in rural England and murky London, crossed the channel to Brussels. They reached the city just as the lights were being turned on. Sud-

prefer shaded lights and pastel tints, what would Broadway be without gorgeous arcs, and dazzling signs which pervade the amusement district? Critics may deplore the eccentricities of certain innovations, de-



**Signs in Front of the Maxine Elliott Theatre. The "Attraction Sign" Used by Theatres is Arranged so that Different Letters Can be Substituted as the Plays Change**

denly the tourists turned and fell upon each other's necks. "Oh, those are the first real lights we've seen in Europe," exclaimed one, while an unsentimental business man added "It makes me homesick, it reminds me of Broadway."

Although thoroughly aesthetic people may deplore its brilliancy and

signed to catch the eyes of the throng but only the wholly prejudiced could fail to see a garish sort of beauty in the entire aspect. Whether it be Emersonian or not, it is "what the public wants."

Conspicuous among the glare of lights are the signs, of as many kinds as the classes of amusement offer.

## The Edison Monthly

There are theatre signs, restaurant signs, displays several hundred feet from the pavement proclaiming the virtues of anything from sewing silk to motor-cars. Not a few of these present elaborate workmanship, but also a careful study of the psychology of attraction.

Never before has the Great White Way been as dazzling as it is now, and never before have contracts in lighting been worked out so carefully. This is due largely to the use of low voltage tungsten lamps, which give a clear white, while the older carbon bulb appears yellow in comparison. Because the ordinary tungsten sign lamp gives twice the illumination of



One of the Largest Signs in the Automobile District  
It Contains 2,400 Four Candle-power Lamps

the usual two candle carbon, while consuming about one-third of the current, sign owners feel free to order more light than ever before.

Meanwhile other improvements have been made. The sign which at night, lit and glowing, has a beauty all its own, by day may be anything but a delight to the eye. To meet this difficulty, there is the arrangement in effect not unlike the old trundle bed. By day, the sign is neatly folded against the wall where it neither takes up space nor obstructs the view.

A frequent type of the theatre sign is the one used for the Maxine Elliott Theatre, as shown in the illustration. The "name" sign is simple and dignified, planned to harmonize with the architecture of the front of the theatre. The letters are of the sunken type, so that the lamps do not project beyond the surface of the sign. This gives an effect of clear lettering, and can be read at a great distance.



The Heart of the "Great White Way"



The "attraction" sign, as the one is called which gives the name of the play at any theatre at a given time, is located at the roof line over the entrance to the theatre. It is of the so-called skeleton type, which has removable letters, so that when the play being given is changed, the sign can also be altered, merely by inserting other letters. Similar "attraction" signs are used throughout the entire theatrical district.

One of the noticeable signs in the territory between "the Square and the Circle" is that recently installed on the roof of the building formerly used as the riding academy of the Tichenor Grand Company. This is a so-called "combination sign," the top line being stationary, while below it are two rows of "talking" or changing letters.

This entirely conservative and dignified arrangement possesses several advantages. The eight-feet high letters in the permanent line are of the long-distance type, catching the eye of the beholder while still many blocks distant. The talking rows beneath tend to hold the attention of the spectator as he comes nearer and nearer.

The first row of monogram letters in the talking sign contains fifteen units, thirty-six inches high. The second row contains thirty-four units thirty inches in height. The letters spell out the advertisements, giving the names of both pleasure and commercial vehicles and in each case

some catchy little remark. The sign makes forty-eight distinct changes before repeating. The sign is composed of about 2,400 four-candle-power carbon lamps.

The electric sign in front of Churchill's restaurant, Broadway and Forty-ninth Street, is composed of



In the After-Theatre Restaurant Section  
Looking South from Forty-ninth Street

multiple series tungsten lamps. The letters are thirty inches high and are known as the "wall type." Above the letters is an attraction novelty consisting of red lamps, in circular form, automatically lighted and extinguished so that a coiling and uncoiling effect is produced.



## Tel-Electric Developments

THE Tel-Electric Company, makers of the Tel-Electric Piano-Player, whose show rooms are at Fifth Avenue and Thirty-first Street, have perfected a

the Tel-Electric Company bent their efforts toward personal interpretation—time and tone. To give the master's own rendition of a piece it is essential that the player must be



The Tel-Electric Playing a Grand Piano. The Only Connection Between the Player and the Piano is an Electric Wire. The Player May be Placed in Any Part of the House while the Piano Remains in the Music Room

remarkable device which they are incorporating into their new piano-playing instruments. With this improvement the Tel-Electric follows the composer's interpretation of any work, even to the smallest details.

Having perfected the details of technique—execution and motive power, in their previous instruments,

capable of everything of which the skilled human hand, guided by the human mind is capable.

The machine must be master of all the tempos from presto to largo and of all gradations of tones from fortissimo to pianissimo. All this was within the range of the old Tel-Electric, but the ability to accent

the individual notes and bring out the theme, making it predominate the entire piece whether in the base or treble, was lacking.

Nothing but the hand and mind have ever accomplished this before and it sounds almost like the recounting of a dream of the world as it will be a thousand years hence to say that a mere machine, a cold piece of brass and steel, performs this wonder.

The day on which the writer visited the display rooms of the Tel-Electric he was in no frame of mind to be impressed by the wonders of a piano-player, being perfectly familiar with the iniquities of the so-called "almost-human" devices. "Live and learn," said the wise man, and the writer now tenders his most humble apology for the mental injustice which he unwittingly did the Tel-Electric by cataloguing it where it did not belong, when it is in reality in a class by itself. Skepticism vanished like a shadow in the night, as one by one different selections from the old masters were played, and in its place came assurance and conviction.

In the try-out given the Tel-Electric on that occasion it was put through the most difficult paces and emerged from the ordeal undismayed while the listener was shamed for his unbelief. Music of the noted composers of several nationalities were played, and in each individual case the native characteristics and the theme-song of the piece were accentuated as clearly as if an artist were playing.

A Chopin Polonaise, Op 26, No 1; "In the Hall of the Mountain King,"

from Grieg's "Peer Gynt," Op 46, No 4; a Valse by Moszkowski, Op 34, No 1, and Nevin's "The Rosary," were some of the representative works of the composers of different nations that the Tel-Electric played that eventful afternoon. The versatility of the instrument may be seen by comparing these selections.

The mechanical end of the device which accomplishes this accenting of the individual note is a coil of resistance wire and a comb wire through which the electric current passes, thus giving any amount of resistance to the striking force of the note. There is, of course, a resistance coil for each note. These are within the little cabinet and not on the piano. The operator has nothing to do with the accenting of the individual notes. It is worked mechanically from the impressions on the brass music roll, although to use the word mechanical in relation to the Tel-Electric seems very inappropriate.

## Electric Shine

WITH the addition of attracting a crowd and getting a vibratory foot massage you can have your shoes shined for a nickle in the new electric machine on trial in one of the large department stores. You take your seat on the stand, put your foot on the rest, and drop a coin in the slot. The foot-rest then slides a little forward into the plate-glass case and a series of big brushes, run on gear-chains, gives a shine said to be sanitary, waterproof, to take about a minute a shoe, and to be in every way superior.

## Madison Square Park at Night

MADISON SQUARE is one of the loveliest of the city's small squares, its charm being indirectly derived from its age, as registered unmistakably by the fine

in the center of an old residence neighborhood, Twenty-sixth Street being the early home of the Yale Club. But of recent years, the skyscrapers have borne down upon the



Madison Square on a Winter Evening. The "Flatiron" and Fifth Avenue Buildings in the Distance

old trees within its borders. Shrubs and flowers can be made to spring up over-night as it were, at the command of the landscape gardener, but only the slow hand of mother Nature can furnish these sturdy reminders of the time when Twenty-third Street was in the real country.

Until recently, this park has been

region, and the park now seems a green speck at the bottom of deep cliffs which now surround it on every hand. The old mansions along Twenty-sixth Street have been the last to go, but even they will soon be found only in the memory of the middle-aged. On the western edge of the Park is the famous Worth statue.





*Original Etching by Joseph Pennell*

A Glimpse of the East River



## The Electric Dumb-Waiter

ONE of the recent applications of electricity which is doing much to increase the efficiency of service in department stores, hotels, apartments, hospitals and libraries, is the electric dumb-waiter. Just as the electric elevator made the skyscraper possible, so its little brother, the dumb-waiter, is revolutionizing vertical transportation on a smaller scale.

In the department store is where its use has probably been most appreciated. It was estimated that in Gimbel Brothers, during the Christmas rush the eight electric dumb-waiters in use there dispensed with the services of from one hundred to one hundred and fifty

boys, who otherwise would have been running from one department to another with arms full of packages, while the pushing of cumbrous trucks through the aisles interferes with shoppers. Among other department stores using them are B Altman, Stern Brothers and Best.

Another place where the electric dumb-waiter has proved indispensable is in the large apartment hotel.



Eight Electric Dumb-Waiters at Gimbel's Saved the Use of 150 Boys During the Christmas Rush

With its aid it now becomes possible to live on the twentieth or twenty-fifth floor and by pressing a button have meals served up hot and steaming from the hotel kitchen. Here its usefulness as a general conveyor is also demonstrated. Among the lead-

ing hotels where it is in use are the St Regis, Hotel Astor, Ansonia, Ritz-Carlton, Belmont, and Nassau Hotel, Long Beach. Among the restaurants using it are Louis Martin's, 587 Seventh Avenue, Rector's and the Pennsylvania Terminal restaurant. It also figures in clubdom, being in use in the Lambs, Lotus, and the Engineers' Club.

In hospitals the electric dumb-waiter is now used extensively for carrying meals to the wards and rooms and for sending medicine, prescriptions and instruments from the drug and surgical departments to various parts of the building. The secret of success of the electric dumb-waiter in hospitals is its quiet operation and the speed which can be attained in cases of emergency. The old-style dummy, operated by a hand rope, goes rumbling, squeaking and banging from floor to floor, and if an attempt is made to hurry it the noise is maddening. Hospitals in New York now using the electric dumb-waiter are Bellevue, Presbyterian, Sloane Maternity Hospitals and the Rockefeller Institute.

The Carnegie Libraries have adopted it because it can be used for carrying books to various parts of the buildings without disturbing the readers.

It has also been installed in the private residences of W K Vanderbilt, George J Gould, T F Ryan, E H Gerry and many others.

It is the product of the Burdett-Rowntree Manufacturing Company.

The car can be controlled from any floor and can be brought to any floor or sent to any floor desired by pressing a button, a series of which, one representing each floor, is located at every door. If the car is in use, or if any door is open, it cannot be started, thus insuring the absolute



Mechanism of the Dumb-Waiters at the Lotus Club

safety of the persons operating, loading or unloading it.

To call the dumb-waiter to your door all that is necessary is to press the button of the floor where you are. If it is in use at the time it will not respond. When it comes

to your floor and stops, a pilot light gives the signal and the door opens automatically. When you are ready to send the dumb-waiter away, close the door and press the button of the floor to which you desire to send and it speeds to that floor, where it halts.

It is best operated by a five-horse-power motor, has a capacity of two hundred pounds and a speed of from 130 to 350 feet per minute.

The Burdett-Rowntree Company furnish almost any form of control for automatic dumb-waiters that may be desired and the various types can be modified to suit special requirements.

The electric controls are divided into two classes—automatic and non-automatic. With the automatic



Electric Dumb-Waiter at Bellevue Hospital. Well Adapted to Hospital Service, Because it is Noiseless

control, the car stops automatically at any door to which it is sent.

With the non-automatic control, the car stops automatically at the limits of its travel and only stops at an intermediate point when halted by

an attendant either touching a button, or pulling the control rope. With the full push control the dumb-waiter can be regulated from different floors at different times by the buttons. With the one point signal control the car is controlled from one floor. Signal devices are furnished so that by pressing a button on any floor the operator will know that the car is desired at the floor from which the signal was sent.



Electric Dumb-Waiters at the Lambs Club Convey Meals to Different Rooms



## The Electro-Cardiograph

THE newest scientific aid in investigating ailments of the heart is the electro-cardiograph, now in use at the Presbyterian Hospital and at Johns Hopkins University Hospital in Baltimore, Md.

This instrument was recently perfected by a Dutch physician, Dr W Einthoven of Leyden. Galvani discovered that the human body is an electrical machine and that each heart beat gives rise to a series of weak electric currents. The cardiograph is designed to measure the exact amount of mysterious "juice" the human heart produces.

The heart of an average adult makes about one-three-thousandth of a volt of electricity at every beat. It would take the simultaneous heart

beats of 220,000 men to make an ordinary incandescent lamp light, or of some 2,000,000 men to create current enough to run an electric car.

The electro-cardiograph consists of a very fine filament of quartz or platinum about one-twelve-thousandth of an inch in diameter, suspended in the magnetic field of a large and powerful electro-magnet. This filament is so fine that the slightest current from the patient's heart causes it to sway to and fro and its movement is photographed on a continuous film. This graphic presentation gives an accurate picture of the exact condition of the patient's heart.

So marvelously sensitive is the fairy strand that it records one-three-thousandth of a volt of electricity.



Electro-Cardiograph at the Presbyterian Hospital. So Sensitive is this Instrument that One-three-thousandth Volt is Recorded. The "Heart Station" of the Presbyterian Hospital is in Charge of Dr Walter B James



## Six Additional Advocates of *The Edison System*



A Group of the New Trinity Factory Buildings Now Coming Into Prominence in the Old Greenwich Village Section. Edison Service is or will be Used in These Modern Buildings. The Total Installation for the Six Shown Here Being 6,575 Lamps Exclusively and 1,220 Horse-power

## Electricity in Cigar Manufacture

**T**O anyone of a thoughtful turn of mind a picture of the stogy factories and sweatshops of Pittsburgh, as portrayed in the famous "Survey," is appalling. To supply the world with a cheap luxury, a terrible tax is continually taken in human lives, wrecked and rendered worthless to themselves and others. Ninety-nine per cent of the stogy makers of Pittsburgh are women—mere girls for the most part, between the ages of sixteen and twenty-one.

Large numbers of them work in a single room, stooped over their benches, breathing the impure air which is the result of insufficient ventilation of factories, where a dust-producing trade is carried on. Still worse are the conditions in the sweatshops, many of which are in damp, filthy cellars, where all the members of a large family work in one room with absolutely no kind of ventilation and breathe again and again the foul air.

It may come as somewhat of a shock to New Yorkers to know that Pittsburgh conditions are identical with those existing in some parts of their own city at the present time, although with the advent of electricity the labor conditions in the cigar-making industry have been vastly improved. This betterment is working out in several ways, but in all of them it is through the agency of the motor-drive, which is being used in small units suspended from the ceiling.

The only possible way to improve the hygienic conditions in a cigar factory is to create ventilation to carry off the breathed air of the workers, the dust and the nicotine exhaled by the tobacco leaves. Once a building has been wired for electricity this is the easiest thing in the world to do, for all that is necessary is to place in each room an exhaust fan and a small two-and-a-half horsepower motor. The objection that space could not be spared for the apparatus can be met by suspending the motor from the ceiling, as is now done in many cigar factories. By leaving plenty of openings for the fresh air to enter on the side of the room opposite the exhaust fan, the air is continually changing, the bad air being sucked out and the fresh air being drawn in. This can be arranged in such a manner that no draft is created.

It is almost an unwritten law in the commercial world that the small producers who grind their profits out of the blood of their unfortunate fellow-beings, cannot compete with large factories, which by superior labor conditions and the quantity in which they manufacture, can put their products on the market at a much lower figure. This principle has operated in the cigar industry, and has sounded the knell of the cellar sweatshop.

This process of extermination, like many other steps forward in recent years, is largely attributable to elec-

tricity, for by the use of the motor-drive, with its small, space-saving units, the average medium-sized cigar factory has been made possible. The cost of a large engine plant, which would prove adequate for the

future growth of business, would in nine cases out of ten prove prohibitive to the man with a medium amount of money to invest. To dispose of an engine for a larger one every few years would likewise be impractical.

This same man, however, may start his business on a small scale with a couple of motors and in doing so not tie up any capital that he may need in conducting his business,

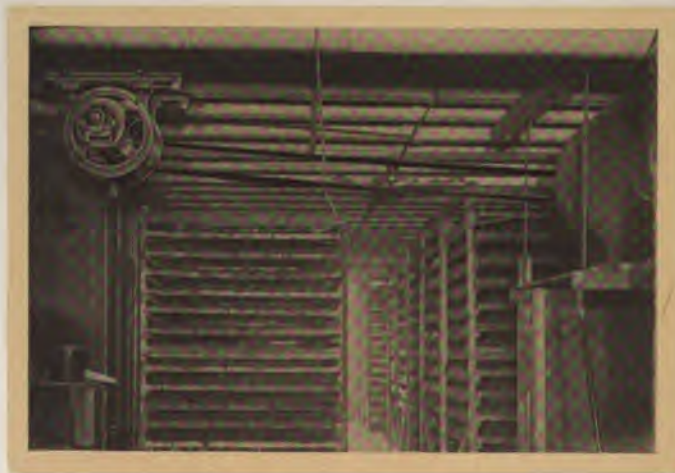
while as his trade grows he simply adds as many units as he requires.

Although the suspended unit can be used anywhere to advantage, it has done more, probably, than anything else to improve the average cigar factory, where economy of space is one of the most important factors. Where this is done, the owner no longer feels forced to dry his tobacco in the same rooms with

the rollers and molders, one of the most objectionable features of the old-time cigar making. In one section of Pittsburgh more than a hundred factories and sweatshops strip and dry the tobacco leaves in the workroom with other employees, causing them to breathe noxious air.



Four Horse-power Elevator Motor in the Rosenthal Cigar Factory, 351 East Seventy-third Street



Motor for Suction-Blower is Suspended from the Ceiling. Note that no Employees Work in the Same Room with the Drying Tobacco. This Seven and One-half Horse-power Motor Operates 300 Suction Tables



The process of cigar making is not a complicated one by any means. First the tobacco leaves are stripped from the stem. Then they are dried. For the better grade of cigars the drying process is allowed to take its time, but for the cheaper kinds the drying is hurried by artificial means. The "filler" is then bunched by machines invented for that purpose and operated almost entirely by young women.

It is passed on to the "rollers," also women, who roll on the wrappers. This is done by a machine invented by Oscar Hammerstein, the revenues from which were the basis of the Hammerstein millions. The leaf is spread over a little metal stand which is so arranged that the leaf is drawn out and held in place by suction. The

operator cuts the tobacco after the guide line on the metal block, always the same shape and size, then rolls it round the bunch of filler and puts it into the box. A forty-six-inch suction blower operated by a seven-and-a-half horse-power motor will operate several hundred suction tables.

One of the concerns in New York

to see the advantage of motor-drive and suspended motors and install them in their factory was the Rosenthal Brothers, of 351 East Seventy-third Street. The establishment occupies a five-story loft building in the cellar of which a large space where an engine once stood has now been added to the carpenter's shop.

The company had long used elec-



This Five Horse-power Motor, Suspended from the Ceiling, Runs Two Saws, a Pump, a Grindstone, and Two Tobacco Cutting Machines

tric current for illumination and early this year ordered an entire power outfit, consisting of a seven and one-half horse-power motor to operate a forty-six inch suction blower; a five horse-power elevator motor; another five horse-power motor to run two saws, pump, grindstone, two tobacco cutting machines, as well as five small motors to operate exhaust fans.



## Mattress Making by Electricity

**I**N this age of progress it has come to pass that now even bedding is being fashioned and made sanitary by electricity. The introduction of the motor drive in this line of manufacture has reduced the fire risk about half and at the same time facilitated the work and cut down the labor cost. The particular branch of bedding manufacture to be treated in this article will be the making of mattresses, pillows and other stuffed varieties.

In the modern method the cotton, feathers, fibre and silk-floss used in stuffing are handled by electrical machinery from the moment they enter the factory until finally sewed into cases. The treatment of the mate-

rial and the process of manufacture differs with various kinds of mattresses. Perhaps the most interesting of all is the system employed in making cotton mattresses, for which an entirely separate set of machinery is utilized.

The cotton used comes on the floor in the original bale, just as it was shipped from the plantation. It is first fed into a cotton-willower, and all foreign matter being removed, the cotton is sterilized. As it comes out of the willower it is run into the felt-weaver, which turns it out in the form of a fluffy layer just the width of the mattress and several inches thick. Many layers of this product are then



The Fibre Picker Preparing the Fibre that Goes Into Some Kinds of Mattresses. Plant of the Sanitary Bedding Company, 524 West Thirty-fourth Street



The Picker and Blower is First Machine Shown Here. Next the Cotton Willower and Last the Felt Weaver. Are Operated by Five-Horse-power Suspended Motors

pressed together and form the inside of a cotton mattress. This as well as all of the other machines has a capacity of turning out fifty mattresses a day. The willower and felt-weaver are both operated by five-horse-power motors.

In the manufacture of fibre-mattresses the fibre used, after being taken out of bales, is put through a picking machine which eliminates everything tough and undesirable and renders the fibre itself fluffy and uniform, ready to go into mattresses. Many mattresses are stuffed with loose cotton, silk-floss or feathers and in the manufacture of these a rather remarkable little machine comes into play. It is known as a picker and blower and picks to shreds the material fed into it, then blows it evenly into whatever is to be stuffed.

A pillow is quickly filled by fastening it over the mouth of the blower and when a mattress is to be stuffed the blower-mouth shuttles back and forth automatically so that the mattress receives the same amount of stuffing all the way across. A five-horse-power motor also operates the picker and blower.

The sewing room is the department where mattress cases, cushions and pillows are sewed prior to stuffing. Hair mattresses are generally filled by hand and the hair before going into a mattress is put through an electrical sterilizing machine. Feathers are also renovated by electricity.

The pictures illustrating this article were taken in the establishment of the Sanitary Bedding Company, 524 West Thirty-fourth Street. In addition to the installation shown in the pictures there are two three-horse-power mo-



This is the Sewing Room of the Sanitary Bedding Company's Factory. A Dozen Sewing Machines are Run by a Three-Horse-power Motor of the Suspended Type

tors used in the feather renovating and hair sterilizing department, of which it was impossible to get a picture owing to the risk in using flash-light powder there.

The photograph on the left, page 332, is of the fibre-picker, and was taken as the machine was doing actual work. The picture on the right of page 332 shows three machines, the first being the picker and blower. When the picture was snapped a pillow was being filled with feathers and can be seen attached to the blower-mouth. The next machine is the willower and the last the felt-weaver. The illustration on this page presents the sewing room.

## Concerning Electric Vehicles

THE most convincing arguments in favor of electric trucks in the city were provided by the snowstorm of the last week in February. Oddly enough, this was not made use of by the vehicle manufacturers to any considerable extent, while the daily newspapers were quick to note the significance of the occurrences on that busy Monday morning.

A striking article was published by the *Journal of Commerce*, which is reprinted here. "The statistics of the snowstorm of yesterday are not yet in—how many tens of thousands of dollars the city will spend in clearing the streets, how many hundreds of horses will have fallen with broken legs or from sheer exhaustion, how many trucks were smashed by trying

to navigate through the deep-packed streets of the business district or how many million broken heads or blackened eyes were registered as the result of lost temper—but it didn't take statistics to prove to any observer that teaming in New York in a snowstorm is a good deal like what General Sherman said war was.

"The only happy man was the owner or driver of an automobile truck. He wore bland smiles all day long and calmly twisted his vehicle about amid the wrecks and belligerency with something almost equal to unconcern. It was surely automobile day downtown, just as much as it was in the auto shows at Brooklyn and Newark, and infinitely more practical.

"The writer happened to drift over to the West Side where there is much

heavy trucking done. Measured in evidence of trouble, there was 'something doing'; rated by the looks of the delivery floors—on a busy Monday—there was nothing doing, but there will be during the next day or two, when every nerve will be strained to catch up. Horse trucks were



Courtesy of "Elec-Trucks"

A "G V" Electric Truck Ploughing Through the Snow



mostly doubled up: two horses on a one-horse truck and four on a two-horse.

"Under that equipment deliveries went on pretty well when the horses were going at all; when they were down - as they were a large share of the time - the only thing that progressed was time, wasted wages and interest. Occasionally horses went down with broken legs only to be put out of misery by benevolent-minded policemen - for you can't repair broken-legged horses, but you can trucks. In as many blocks in Hudson Street, three dead horses testified to this fact.

"And all the time auto trucks went about their business with little or no trouble, carrying almost, if not quite, their usual loads, and with very slight delay, getting around in time. Late in the day a prominent wholesale grocer called up his delivery foreman. He told the writer that he always banked on autos for his long distances, but guessed they were working around town. He was astonished to find that one had gone to the upper end of the Bronx and back with almost six tons load and was only three hours late on the whole round trip.

"Another had carried a similar load to Flushing and Whitestone

with similar satisfaction. Another had gone way out to Ridgewood and back, taken a second load and gone to the lower end of Flatbush. Another had made a similar trip to Corona, and the smaller trucks had been spinning out into Brooklyn and upper Manhattan without any noticeable annoyance in time or reduction of load. This grocer was asked about comparative cost of operating trucks and autos.

"I don't care a continental about



*Courtesy of the "Tribune"*

**One of the Many Tragedies of Horse Trucking in the Last Snowstorm**

the cost when it comes to a day like this,' he said. 'It isn't cost so much as it is to get around and do the work at all. There's a lot of competition for this trade, and it's worth all it costs to keep the distant customer from feeling that he's out of the world. Now here are all these customers of mine comparing my service with that of my competitor, who won't be able to get out there with his horse trucks for a day or two with the stuff they want for their trade.



"As a matter of fact, I don't think there's much difference on cost, from a scientific standpoint. Under reasonable conditions of traffic, I think the trucks will do twice what a horse truck will at about one and one-half the cost. When it comes to weather like this, or hot days when we hesitate to send horses out in the sun for long distances, there's more things to be reckoned with than cost in dollars."

"The same story was heard in substantially the same way from all truckmen solicited for an opinion. Here and there one had tried to figure out the comparative economy on a nice basis, but when they found platforms piled high with goods for delivery and the number of trucks reduced by half in order that their horses might be added to the other teams, there was a decided interest

in trucks—whatever the cost, scientific or otherwise. Statistics may have their value, but New York in a snowstorm, on a busy Monday, prefers to consider the question as a war measure, where money and figures are relegated to the background."

### Electrics in St Louis

ST LOUIS is one of the Western cities in which electric vehicles, both pleasure and commercial, have come to the front within the last few years. According to the *St Louis Republic* in 1907 there were just eleven runabouts in the city and the electric truck was almost unknown. There are now three hundred and seventy-five electric pleasure cars in use, and one hundred and fifty electric trucks. A

public garage, for the care of electric commercial vehicles only, was opened this Winter by the Union Electric Light and Power Company. Seven other establishments take charge of electric pleasure vehicles. At the garage for trucks a corps of engineers give definite information regarding electric trucking to those interested.



Steinway Truck Leaving the Acme Garage. The Steinway Piano Firm Uses Lanaden Trucks

### Electrics in California

TO anyone who has visited San Francisco and the nearby cities, the success of electric vehicles in this hilly region is noteworthy. A year ago the lighting company of San Francisco tried out a 7,000-pound electric truck. This was able to climb hills in San Francisco with as steep a grade as ten per cent when loaded with a reel of cable weighing 6,000 pounds. As a result more electric vehicles have been ordered and four Baker electric runabouts are already in use by the San Francisco Lighting Company. In Oakland an electric vehicle is being used in delivering lamps, while a Detroit, a one-and-one-half ton wagon and a 2,000-pound General Vehicle truck have been ordered for the Electric Department. A 1,000-pound wagon will be used in Fresno, while two electric wagons have been ordered for Sacramento.

### Electrics in Berlin

ELECTRIC vehicles are extremely popular in Germany, particularly in Berlin, where within the last few years, all of the horse-apparatus of the fire department has been dispensed with, and an entire equipment of electric engines, carts, and so forth put in their place.

According to the statement given out, it costs exactly one-tenth as much to maintain this electric fire department equipment, as it did for the horse-drawn service which the electrics superseded.

This was followed by an order for seven hundred and fifty "1,500 Kilo" electric wagons for the Berlin Post

Office. The maker of these electrics is the "Norddeutsche Automobil- und Motoren-Aktiengesellschaft" of Bremen. Strange to say, in popular speech, the name of the firm is abbreviated and is generally known by

## Elektrische Selbstfahrer



*sind stets betriebs-  
fertige, leicht lenk-  
bare, völlig geräusch-  
und geruchlose Wagen,  
die vielbeschäftigte  
Personen von Führer-  
personal und öffent-  
lichen Verkehrsmitteln  
befreien, sie sind für  
den Stadtverkehr die  
gegebenen Fahrzeuge.*

Electrics are Popular in Berlin—One of the Advertisements used there. It reads: "Electric Vehicles are Always Ready, Easily Driven, Entirely Noiseless and Odorless They Free Busy People from the Use of Chauffeurs and Public Conveyances. Electrics are the Favorite Vehicle for City Use"

the initial letters, "N A M A G." One of the advertisements used in the electric pleasure vehicle campaign in Berlin is reproduced above.

"Truth is stronger than dictation."

## Electric Flat-Iron Devices

AN interesting novelty in the way of an electric iron is the arrangement made recently by a large "ladies' waist" manufacturing firm in East Thirty-second Street. The instance shows how readily electric irons can be adapted to al-

graceful effect of the waist. However, it was absolutely necessary that the tucked portions should be smoothed in some fashion. By experimenting to obviate this difficulty, the proper device was discovered. This is a long narrow goose



Inverted Iron in the Waist Making Establishment of J & M Cohn. When Tucked Chiffon or Other Thin Fabrics are to be Pressed, the Tucks are Passed Over the Surface of the Inverted Iron This is Mounted on the Left End of the Bench Shown in the Illustration

most any use by exercising a little Yankee ingenuity.

One of the difficulties which the manufacturers of silk and chiffon waists have had is that of ironing the tucks. When pressed by the ordinary process the tucks became flattened beyond recall, ruining the

iron inverted and riveted to stilts which are set in the table. The tucked material is then passed gently over the hot face of the iron. This smooths the goods without flattening them.

The photograph on this page shows one of the pressing rooms of J & M



Cohn and at the extreme left end of the table is the inverted iron. This firm uses twenty-one electric irons, an electrically heated plaiting machine and an electric coffee urn, so that employees may have hot coffee with their lunches.

Another business which has been invaded and very largely won over to the electric iron is necktie manu-

The picture on this page shows how neckties are pressed in the establishment of Blanchard & Price, 142 Fifth Avenue, one of the makers of expensive neckwear. The installation consists of ten Riemer irons. The firm of Oppenheimer, Franz & Langsdorf, of 23 East Twenty-fourth Street, has twelve irons; while James R. Keiser & Company, an-



A Complete Electric Equipment in a Fifth Avenue Cravat Firm  
Necktie Makers are Extensive Users of Electric Irons

facturing. A large number of factories on and near Fifth Avenue, including the leading concerns, are electric-iron advocates. Linen and wash ties require more heat than silk, so every iron is equipped with a regulating device, by means of which the two desired grades of heat are secured from the same iron.

other fashionable concern, keep forty electric irons busy.

“Is there any good reason why a man should feel flattered at curiosity concerning the state of his health, and insulted at curiosity concerning the state of his bank account?”—*The Idler*.



## Electricity in the Household

GREATER interest has been displayed this Winter than ever before in the matter of labor-saving household devices, and

before placed with any manufacturer, from the makers of the "Thor" home-laundry machine.

At the same time, confirmation of

that report is found in the recent experiences of the Heating Department of this company. Large apartment houses which previously had thought themselves extremely progressive to provide electric flat-irons for their tenants, now go a step further and order the complete laundry equipment. Recently one apartment house on Park Avenue ordered six machines, while another a few blocks further up-town has ten. The mansions composing



The Westinghouse "Family" Motor. This New Type for Household Use, will Operate Successively a Washing-Machine, an Ice-Cream Freezer, a Sewing Machine and a Buffing Wheel

among them, markedly in the various styles of laundry equipment.

Undisputable evidence of increasing acceptance of the electric washing-machines is furnished by the fact that a few months ago the Westinghouse Company received the largest order for small electric power motors ever

"Millionaires Row" on Fifth Avenue and on Riverside Drive are not considered complete without full sets, including washing-machines, wringers, dryers and electrically heated rollers for "flat-work."

The reason for the growing use of the electric washing-machines is not

far to seek. For the wealthy, who wish an unlimited allowance of finely laundered linen, machinery is absolutely necessary. For the well-to-do, who are fortunate enough to have servants and wish to keep them, the electric washing-machine is desirable in holding a good class of "help." And in the same household, when the servants decide to leave, the laundry equipment stands between them and a great deal of inconvenience.

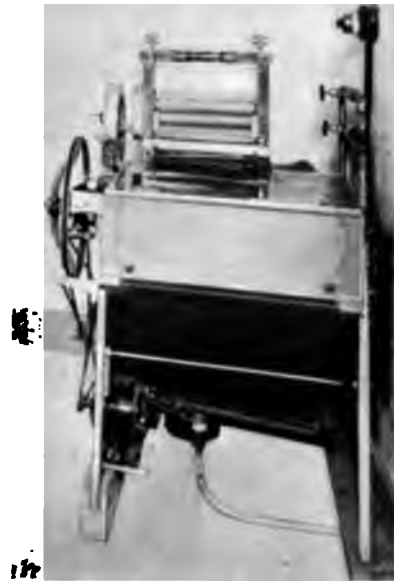
Yet, while the home standard of good laundry work has gone up, the commercial rating has not remained at a stand-still. In fact, even the despised "heathen Chinese" has learned to appreciate the advantages of the electrically driven washing-machine.

The sales manager of one of the manufacturing companies commenting on this situation, remarked: "If you want to sell a washing-machine to a Chinaman, you don't need to talk to him. Just set up the machine and let him try it one Monday morning." Indeed, one large central station company has a special Chinese department to meet the demand of the laundry men for current and apparatus.

One of the difficulties which the housewife encounters who has tried to install electric equipment in her home has been that hitherto there was no one motor which would provide the different speeds required for sewing, washing, wringing, mangling, meat chopping, coffee grinding, silver polishing, and other tasks to which electric current can be advantageously applied. Aside from the small heating articles which

could be connected directly to a lamp socket, the use of electric household devices entailed considerable outlay for motors.

The trouble came from the fact that the different machines for domestic purposes must operate at entirely dif-



Electric Washing-Machine in a Park Avenue Apartment. A Separate Laundry Equipment is Furnished for each Tenant

ferent speeds, and require varying amounts of power. For instance, washing-machines and ice-cream freezers should not go faster than 100 revolutions per minute, while sewing machines must have six times that speed and buffing wheels do their work at 1,700 revolutions a minute.

Recently Mr Steiner, of St Louis, Missouri, has devised a method whereby the same motor can be applied to these divergent operations. Thus one motor is doing the work which formerly required several, and accordingly effecting a considerable saving for users of household apparatus. The outfit consists of an adjustable stand on which the motor is



Ironing is no Longer a Long, Hot, Heavy Task, When Electrically Heated Rollers Do the Work



Washing and Ironing Made Easy With an Electric Laundry Equipment

mounted and belted to a short three-speed counter-shaft, from which any device to be used may be connected by a belt or through a worm gear for further speed reduction. With this equipment the same motor can be used successively to operate the washing-machine, the wringer, the mangle, an ice-cream freezer, the sewing machine, coffee grinder, meat chopper, polishing and grinding wheel. This is the new Westinghouse "Family Motor."



## Illumination for Advertising

**A**N attractive new form of building advertising has recently been tried at Fifth Avenue and Forty-second Street. On the southeast corner, a most excellent location, is a new seven-story office structure, the first floor of which is given over to shops. It is the custom of the owners to light this building every evening to its full capacity, their object being to catch the attention of a probable tenant and interest him to the extent of locating there. The lighting system employed is excellent and when the building is all ablaze with light the sight is most attractive.

The report of the renting office proves that the originators of the scheme did not go amiss in adopting it instead of spending money in other channels of advertising, which judging from present indications, could not have been nearly so successful. In the future this plan should become a popular one in disposing of new offices and stores.

The entire building is lighted by tungsten lamps in opal reflectors.

There are twenty-five offices on a floor and in every office two fixtures with sixty-watt tungsten lamps. Eight more sixty-watt tungsten bulbs are used in lighting the upper public halls, while the main entrance is lighted by three four-arm brackets



Building on the Southeast Corner of Fifth Avenue and Forty-second Street, Just Completed. It is Illuminated Nightly to Attract Tenants.

with sixty-watt tungsten lights in round ground-glass balls.

On the lower floor are ten stores, the corner one being occupied by the United Cigar Store Company. There are three windows in this store and each one is illuminated by six individual sixty-watt tungsten units. The Hippodrome Art Shop occupies another store, in the two windows of which are 250-watt tungsten lamps.



## WIRING AND INSTALLATION CONTRACTORS

### West of Broadway and Fifth Avenue

Amsterdam Ave 452—C A Christesen  
 Amsterdam Ave 648—H Blumstetter  
 Broadway 237—Electric Cons & Supply Co  
 Broadway 335—Park Sullinger  
 Broadway 379—J S Bihin  
 Broadway 593—E W Hirsch  
 Broadway 725—L F Benn  
 Broadway 1170—The Chas L Eidlitz Co  
 Broadway 1265—S W Electric Co  
 Broadway 2270—A Ostrom Rowe  
 Broadway 2382—H S Beidleman  
 Broadway 2742—H Reinwald Jr  
 Church St 50—L K Comstock & Co  
 Columbus Ave 220—T F Carr & Co  
 Columbus Ave 330—C T Pinkham & Co  
 Columbus Ave 549—Hoffman & Elias  
 Columbus Ave 649—E Craske  
 Cortlandt St 26—Cleveland & Ryan  
 Cortlandt St 39—Blackall & Baldwin  
 Cortlandt St 39—Berg & Co  
 Cortlandt St 84—Beyle Elec Co  
 Duane St 172—Jas F Hughes Co  
 Eighth Ave 2719—Frankline Elec Co  
 Eighth Ave 2527½—M Kohosoff  
 Fifth Ave 65—L A Whitney  
 Fifth Ave 75—H M Walters  
 Fifth Ave 503—Flucker & Keedwell  
 Fifth Ave 571-573—Hatzel & Buehler  
 Greenwich St 183—Thomas & Johnson  
 Greenwich St 207—F A Frey  
 Greenwich St 255—F C Ross  
 Hudson St 660—Edw S Eaton  
 Sixth Ave 110—J V Johnson  
 Sixth Ave 617—Zenker & Siems  
 Sixth Ave 780—C C Bohn Electric Co  
 Sixth Ave 873—John W Flint  
 Seventh Ave 192—Emil Christensen  
 Seventh Ave 727—Conduit Wiring Co  
 Seventh Ave 2290—Nathan Zolinsky  
 Thames St 27—Watson Flagg Eng Co  
 Thames St 27—McLeod Ward & Co  
 Varick St 132—Eugene P Etzel  
 Warren St 73—J P Hall  
 Warren St 96—Wm F Duffy  
 Warren St 96—Independence Electric Co  
 West St 116—Knickerbocker Electric Co  
 West St 463—Western Elec Co  
 West Broadway 430—J H. Roberts  
 West 14th St 130—The Electrical Contracting Co  
 West 17th St 156—Harry A Hanft  
 West 21st St 35—W J McClure & Co  
 West 26th St 54—Louis Freund  
 West 27th St 20—Payne Hayden Co  
 West 28th St 11—Thos J Dillon  
 West 30th St 110—Tucker Elec Con Co  
 West 30th St 111—Jandous Elec Equip Co  
 West 33d St 209—E J Elec Installation Co  
 West 34th St 45—Peet & Powers  
 West 38th St 39-41—Dennis G Brussel  
 West 38th St 72—A J Buschman Co  
 West 42d St 25—Russell Electrical Co  
 West 42d St 29-33—Germond & Turner  
 West 42d St 112—Oberg Blumberg & Bleyer  
 West 45th St 100—F A Bohling  
 West 49th St 422—Frank Pisch  
 West 61st St 120—L J Moriarty  
 West 72d St 170—T J Kaufman & Co  
 West 111th St 147—Mariposa Electric Co  
 West 116th St 227—Lewis S Davis  
 Wooster St 12—Dorbrow & Hearne Mfg Co

### East of Broadway and Fifth Avenue

Beekman St 1—Elec Motor Insp & Rep Co  
 Beekman St 74—Jordan Bros Inc  
 Broome St 103—B H Weinberg  
 Cedar St 16—Wm Truswell & Son

### Dover St 8—E W Hazzer

East 7th St 138—H A Schreiber  
 East 9th St 65—George D Beinert  
 East 9th St 51—B W Sandbach & Co  
 East 22d St 27—Hunt & Morgan  
 East 22d St 113—J Livingston & Co Inc  
 East 23d St 10—Porth Elec Co  
 East 23d St 42—Kimball Elec Construc Co  
 East 23d St 145—Bateman & Miller  
 East 25th St 122—Isador Fajans  
 East 28th St 114—Burkart Elec Co  
 East 30th St 13—Geo H Shuman  
 East 37th St 207—Reis & O'Donovan  
 East 42d St 39—Edwards Elec Con Co  
 East 42d St 45—Cowden & DeYoung Inc  
 East 55th St 147—Morris Levi & Co  
 East 57th St 426—Behlert Elec Co  
 East 59th St 57—Stanley & Ruth  
 East 72d St 167—E J Dustman  
 East 77th St 440—Edw Zenker  
 East 85th St 204—J E Woelfle  
 East 88th St 176—M Strompf  
 East 125th St 13—L L Strauss  
 East 125th St 31—Leo S Stern  
 East 125th St 77—Peter Jansen  
 Frankfort St 26-30—J F Bidstrup & Co  
 Fulton St 44—E Klein & Bro  
 Fulton St 90-98—Fulton Electric Co  
 Gold St 29—Mfrs & Inventors Elec Co  
 Gold St 82—Naumer Elec Co  
 Grand St 209—Nathan Klein Co  
 Grand St 235—Joseph Waintrob  
 Great Jones St 5—Bolton Elec Co  
 Great Jones St 38—Geo Weber & Bro  
 John St 52—Alfred Whiteley  
 Liberty St 120—Edward B Stott & Co  
 Liberty St 123—G Curt Kastner  
 Liberty St 126—S Arthur Brown  
 Madison Ave 314—Nimis & Nimis  
 Madison Ave 1122—F W Cohn  
 Park Ave 103—Stehlin-Miller-Henes Co  
 Park Ave 1630—Guarantee Electric Co  
 Park Ave 1955—Blackman & Guttman  
 Pearl St 59—Oswald Elec & Eng Co  
 Third Ave 221—Maurice Young  
 Third Ave 670—Silverman Bros  
 Third Ave 1021—E Kalkan  
 Third Ave 1721—The Atlas Electric Co  
 Third Ave 1890—Parker & Cooley  
 Wall St 2—Edwin C Gee  
 Wall St 71—Fleck Co M F  
 Wall St 99—Chas Davidson

### Bronx

Baker & Fox—313 E 141st St  
 Bogan Irving A—4192 Park Ave  
 Evans & Kaestner—803 Intervale Ave  
 Hinners F J Jr—585 East 135th St  
 Israel & Co—450 East 148th St  
 Kips John & Co—161st St and 3d Ave  
 Kirschoff C Arthur—584 East 163d St  
 Landy Jacob—673 Elton Ave  
 Mangam H I & Co—333 East 162d St  
 Ross E L—350 East 138th St  
 Ryan Geo E—603 Tremont Ave  
 Schwarzler & Co—460 E 167th St  
 Vielberth Jos F—1243 Taylor Ave  
 Wienecke Louis—893 Faile St  
 Woods Lewis H—2355 Jerome Ave

### Yonkers

Excelsior Gas & Elec Fixture Co—42 Warbur-  
 ton Ave  
 Imrie & Underhill—Bronxville N Y  
 Intervale Electric Co—12 N Broadway  
 Nugent A W Co Inc—5 Dock St  
 Seaboard Elec Co—12 N Broadway  
 Westchester Elec Equip Co—34 N B'way

# *The Edison Monthly*

*May*

*1911*

## C O N T E N T S

VOLUME III

NUMBER 12

	Page
Editorial - - - - -	346
Columbus Circle on Thanksgiving Night -	349
The Municipal Building - - - - -	350
The Unique Pullman Building - - - - -	353
New Warehouse of the General Electric Co -	354
Electricity in the Drafting Room - - - - -	355
Ozonizers in The National Park Bank - -	358
The Psychology of Window Lighting - - -	360
An Electric Timekeeper - - - - -	362
Edison Service and the Telephone - - -	364
An Electric Drink Mixer - - - - -	365
Electrics on the Pacific Coast - - - - -	366
Electric Pleasure Vehicle Association - -	367
The City's Model Police Station - - - -	368
Electricity in Mine Rescue Work - - - -	370
An Electric Apartment - - - - -	372
Yale Seniors Visit New York Light and Power Plants - - - - -	374
Street Fixture Improvements - - - - -	375

# Editorial

## *The Edison Monthly*

Published by

## *The New York Edison Company*

General Offices

55 Duane Street

New York City

President

MR ANTHONY N BRADY, 54 Wall Street

Treasurer

MR JOSEPH WILLIAMS, 55 Duane Street

Secretary

MR LEWIS B GAWTRY, 4 Irving Place

This month will see the gathering in New York City of some three to four thousand of the members of the National Electric Light Association, to attend the society's annual convention. With this assemblage the National Electric Light Association, the representative body of the electric lighting industry in this country, enters the second quarter century of its existence.

This bare statement of fact contains elements of the sensational. The electrical industry was certainly in its infancy when the first convention met in Chicago in 1885, and the Association's total membership numbered seventy-one. Now, but twenty-six years later, the National Electric Light Association represents invested capital of over two billions of dollars.



Accustomed as this country is to lightning changes and Western cities, springing up overnight like mushrooms, these figures are more than the story of an Oklahoma town.

They represent the factories motor-driven, the cities electrically lighted,

and the thousand and one uses to which the wonder-working current has been put. In fact, in those figures one may see the birth of a new world epoch.



It is less than twenty years ago that one of the influential newspapers of this city conducted a campaign against the then popular belief that there was something particularly harmful in night air and that it was on the whole safer to sleep with one's window closed.

So recent indeed is the recognition of the value of fresh air that a building supplied with any sort of ventilating system is very rare indeed, while the systems that really do ventilate are rarer still. Ideally, of course, every structure should be so constructed that each room shall have a plentiful allowance of air.



However, there remains the quantity of buildings, frequently very imposing ones at that, which were erected before the science of ventilation had been heard of. Theoretically, no doubt, these should all be torn down and replaced by more modern structures, but practically we shall have them with us for many a long year.

Much can be done, though, to make the best of what we have. Only a few weeks ago an electric device for purifying the air was introduced in the old County Court House, a build-

ing notorious for its poor ventilation. This proved so successful that within a week another justice had one installed for the court over which he presided.



There were 11,158 fires in Manhattan and the Bronx during the year 1910, making a loss of \$6,273,446. The official report of Mr J C Forsyth, Chief Inspector of the New York Board of Fire Underwriters, of the total number of fires investigated, states that only twenty-four were proved due to electrical causes. The property value entailed in these was \$27,530, or four-tenths per cent of the fire loss for the Boroughs of Manhattan and Bronx.

In contrast with this, some figures of Commissioner Waldo's report are worth repeating. Thus we find the principal causes of fires for 1910 classified as follows:

Carelessness with matches . . . . .	1022
Bonfires, brush fires . . . . .	977
Carelessness with lighted cigars and cigarettes . . . . .	825
Overheated stoves, stove-pipes . . . . .	516
Carelessness with candles, tapers, etc. . . . .	484
Chimney fires and sparks from chimneys . . . . .	483
Children playing with matches . . . . .	357



There are altruistic as well as economic arguments for the use of electric vehicles. It is fairly obvious, that if horse-trucking were dispensed with, municipal bills for street cleaning would be very much lessened. It has been also suggested that the work of the Health Department could be cut down, for it does not

take much imagination to picture street-sweeping as an agent of germ dissemination. If one is to consider the good of the community, why not mention the fact that an electric does not fill the surrounding air with noxious vapors and smoke and does not leave a coating of oil upon the pavements.



An English scientist has suggested that in the not too distant future "people will be forbidden to carry on combustion within a certain distance of any town or village." Instead, according to Mr Ferranti's prophecy, combustion of coal will be permitted in only a few centers, which in their turn will be headquarters for the distribution of electric power. It would take only a hundred such mammoth central stations to drive all English factories and to light and heat the towns.



The necessity for this radical change is the conservation of the coal supply. The writer points out that well stocked as England is in this respect, the supply will not last forever. Furthermore, it is stated that out of every thousand tons consumed only about one-tenth is usefully employed. The other nine hundred tons are "wasted in the process of conversion into energy, —most of it in smoke." In the meantime, before the happy day of an all-electric England arrives, the writer advocates the present commercial central station, instead of the individual private plant, as offering the greater promise to the consumer.





Skyscrapers of Lower New York

*W. H. Furness*

# Columbus Circle

On Thanksgiving Night

**T**HE whirling snow drives 'cross the lighted square,  
 Graying the tall monument.  
 Each street light has a halo and the glare  
 Of high electric signs is softened to a golden haze,  
 Giving the wide Circle quite a gala air:  
 While through the maze  
 Of lumbering busses, swaying cabs and black  
 Beetle-like autos, scurrying o'er the snow,  
 Hurry dim figures; with bending head and back  
 Against the blast, in laughing groups they go,  
 Or singly from visit, matinee  
 Or work perhaps, on this Thanksgiving Day.—*Charles J Storey*



The Streaks of Light on the Trolley Tracks are Head-Lights of Oncoming Cars, while the Irregular Ones are those of Automobiles. Note one Car Coming Out of a Garage on the Left

## The Municipal Building

ONE of the largest instances of the application of motor power to construction work in New York is that of the new Municipal Building. The plans for this provide for twenty-five main stories, surmounted by a tower of fifteen additional stories. The total

height of the building including the tower will be 580 feet, making it the third highest in the city. It will have a frontage of 381 feet on Centre Street, 168 feet rear on Park Row, and will be  $158\frac{1}{2}$  feet deep. The office area, exclusive of corridors and two shafts, will be more than 600,000 square feet.

The high tower is directly over Chambers Street, one of the main traffic arteries of the city, which will pass through the center of the building. The deepest part of the structure will be about thirty-five feet below curb. At that level will be the great terminal for the Bridge Loop Subway and other future underground railroads. The building will furnish office room for the principal departments of the city, and perhaps some of the courts, which are to-day paying a total rental of \$453,000 annually. The cost of the building will be in the neighborhood of \$11,000,000.



A Smith Concrete Mixer for Floor Filler, Driven by a Fifteen Horsepower Electric Motor. In all, 1,500 H P are used for Construction

The structure is of steel skeleton construction, fireproof throughout, with floors and walls supported by the steel superstructure, which alone weighs 25,000 tons. The entire weight of the structure itself, increased by the weight of its contents and by the stresses due to wind pressure, is estimated at about 165,000 tons.

Very few of the people in the large crowds that stand every day and watch those great steel beams weighing tons being swung hundreds of feet into the air until they rest in their appointed places know that it is done by means of electricity. Yet this is actually the case, for every bit of hoisting in the construction of this great city building is done by electric motors. The combined strength of the motors in use is 1,500 horse-power.

The mammoth steel girders which form the arch over Chambers Street,

weighing from forty to sixty tons, were the largest pieces of steel probably ever handled by electric hoists in constructional work. They were trucked from the dock to the site by a massive wagon specially built for the purpose and drawn by thirty-six horses. The route was marked by smashed pavements and man-holes. To raise them into position above Chambers Street required the joint power of two and sometimes three of the electric hoists, while the greatest precautions were taken to avoid a disaster. In the raising of these colossal steel beams not a life was sacrificed.

For this heavy type of lifting there are eight eighty horse power and four forty-horse-power hoists in use. These are for several reasons (chief among them being economy) more advantageous than those driven by other power. Electric hoists consume



**A Hod-Hoist, Electrically Driven, Moved from one Location to Another, as Needed, on a Cart**





A Hod-Hoist, Driven by a Forty Horse-power Electric Motor

energy only when actually lifting. The current being entirely shut off when it is idle, there is no more expense attached to it at such times than there is to machinery stored away. With any other kind of power there must be as much energy in store when the hoist is idle as is consumed at the moment it is lifting its heaviest burden.

In addition to the steel hoists there are twelve forty-horse-power hod hoists. These are used for raising wheelbarrows

loaded with numerous building materials to the different floors. They are most commonly employed to carry cement, concrete, hollow tile for flooring, mortar and plaster.

Besides the hoists, electric current operates two fifteen-horse-power mixers which prepare the concrete used in connection with the fire-proofing between floors. Two seven and a half-horse-power pumps clean out the sump, while four thirty-horse-power compressors supply the compressed air

for the riveting hammers. Electric motors are now being generally used for compressing the air to drive these riveting hammers.



Steel Hoist, Operated by an Eighty Horse-power Motor

## The Unique Pullman Building

**T**HERE is now a building in New York to which is conceded the peculiar distinction of being the tallest structure ever erected on a single city lot of the usual dimensions. This is the Pullman Building, which stands on a plot that is actually twenty-four feet eight inches wide by a hundred feet deep, adjoining on the north the church of the Rev Dr Charles Parkhurst, in Madison Avenue, between Twenty-fourth and Twenty-fifth Streets.

In addition to these unusual proportions there are several other interesting facts about the structure. To begin with it was finished in record time, almost an unknown thing in New York City building, the work being started on July 15, 1910, and com-



*William H. Gumpert, Architect*

**The Pullman Building, the Tallest Building Ever Erected on a Single City Lot**

pleted on February 15, 1911. Next its height and extreme narrowness and its exposed position presented certain very difficult problems in structural wind-bracing.

The building is sixteen stories high and its style is Italian Renaissance. The Ionic columns at the entrance are of Milford granite, designed to be in harmony with the church front just to the south, while the first three stories are of Indiana limestone. Above the fourth story light brick with terra-cotta trim has been employed. The

south side has been laid up in face brick in tapestry design and terra-cotta. The interior is exceptionally light, because windows are on all sides above adjoining buildings. Edison light and power is used throughout.

## New Warehouse of the General Electric Company

THE General Electric Company is now occupying their new eight-story warehouse at Greenwich and Morton Streets. This structure embodies every convenience and practicality that could make it a model in its class. There are 10,000 square feet of space on each



The General Electric Company's Warehouse, Where all Kinds of Electric Apparatus Will be Stored  
Edison Service is Used Throughout



floor or a total of 90,000 square feet of floor space in the entire building. The warehouse is a steel frame fire-proof structure built of stone and light brick with concrete floors.

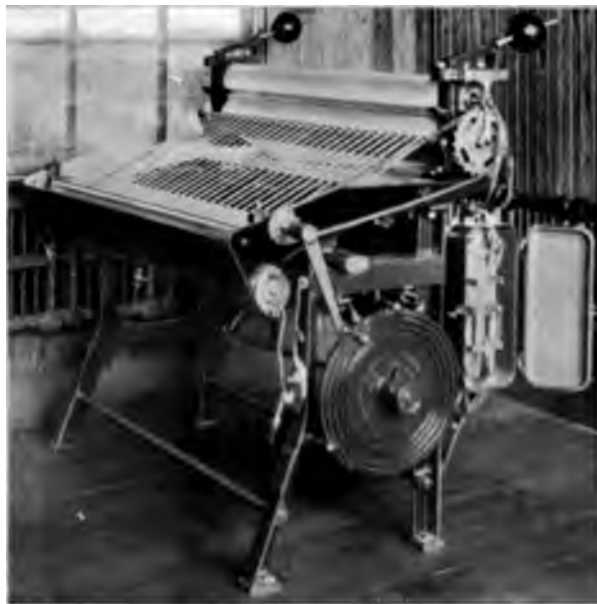
The first floor will be taken up by the shipping and receiving departments, while the second and third floors will be given over to storage bins. These bins were specially designed for their use here. Being all steel, the bins are fireproof. They are not fastened to the floor and can be expanded either horizontally or vertically. Furthermore, the bins are so arranged that even the highest sections can be reached without the aid of a ladder. The rest of the floors are used for storing standard packages. Among the things to be housed in this warehouse are lamps and accessories, cut-outs and fuse boxes, controller parts, fan motors, fuses, heating and cooking devices, incandescent lamps, lightning arresters, meters, mercury arc rectifiers, motors, porcelain material, railway line material, railway motor parts, rheostats, sockets and receptacles, switches, transformers, wires and cables. There will always be 500,000 incandescent lamps in stock.

There are three

elevators and later the first floor will be equipped with an overhead track and crane for piling motors and transformers. There is a tank on the roof which holds 6,500 gallons of water for fire emergencies.

## Electricity in the Drafting Room

A PROCESS has been devised by which blue prints can be made directly from the original drawing, entirely eliminating the slow and laborious task of tracing. This consists simply of placing a sheet of transparent tracing cloth on the drawing and copying, the blue-print being then made from the tracing. This work, entirely mechan-



The Mechanigraph Consists of a Series of Electrically Heated Rolls, a Bath, Electrically Warmed, a Series of Traveling Tapes and Dyer Rolls. It Occupies Less than Four Square Feet of Space



ical, demanding no ingenuity nor particular skill, consumes the time of one man in every three in a drafting room.

An electrical machine which does away with this procedure is now coming widely into use. The mechanigraph, so-called, makes any piece of white paper, no matter how heavy or opaque, transparent enough to print from rapidly, and intensifying the pencil drawing on the paper so that it has the effect of ink.

The advantages of such an arrangement are obvious. Any machine that will accomplish the work of nearly a third of the men in a certain department in a time so short that it is not worth reckoning, may well be ranked as a profitable invention. A draftsman's wages are by no means a small item and when the combined salaries of several are saved the sum is far from negligible.

One might naturally suppose, too, that the introduction of such a machine into an office would force some draftsmen out of employment. But that is not the case, for in nine drafting offices out of ten the men are retained, only put at other work which is far more to their liking than the continual grind of tracing.

Besides looking at this invention from the standpoint of economy in the drafting room it must be considered as an expediting agent on large contracts, where time is money to both the contractor and builder. When a contracting concern undertakes an important piece of work, agreeing to finish it on a certain date, in many cases a bonus is offered for speedy completion of the work, but should it not be finished on the day

set the contractor is to forfeit a certain sum. On such penalized contracts the days spent tracing details may be the very ones that cause forfeiture. The office that can save those days is the office that is surest to win, and with the mechanigraph—which does away with all tracing—the estimating and real construction work can be begun the instant the original drawings are completed.

Besides saving time, this mechanism prevents the little errors that creep into any tracing and consequently the necessary checking of tracings to assure their faithfulness to the original is done away with. Pencil drawings, after having been put through the mechanigraph, may be erased and corrected, while old tracings that have become water-spotted and crinkled go through the mechanigraph once and come out almost as "good as new."

The machine consists of a series of electrically heated rolls, a bath which is also electrically warmed, a series of traveling tapes and a pair of drier rolls. It occupies a floor space less than four feet square—half the room occupied by a draftsman. The operation of the machine is simple. The drawing to be treated is passed between the first pair of rolls, which carry it through the transparentizing bath, whence it runs along the moving tapes and through the drying rolls. The liquid is non-inflammable.

The inventor of the mechanigraph is Mr Charles L Crabb, and among the firms now using it, one of which asserts that it is saving them \$40 a month, are the Otis Elevator Company, Yale & Towne, and others.



Overlooking Madison Square from a Twenty-second Street Window

E. H. G.

## Ozonizers in The National Park Bank

**N**OT long ago the officials of the National Park Bank found that the air in many parts of their building became vitiated toward the latter part of the afternoon and for the health of their employes it was obvious that the condition must be remedied. It was impossible to improve on the ventilating system, which is most elaborate, so it was determined to install electric ozon-

izers. The ozonizer is a small cabinet about a foot high which generates and discharges ozone by means of electrodes.

When in operation the ozonizer does on a small scale, indoors, what nature does outdoors by means of a thunderstorm. The fresh, invigorating air after a thunderstorm is due to the ozone massed by the electrical discharges. Ozone, which is simply another form of oxygen, is produced among other ways by the passage of electricity through the air. The current needed by the ozonizer can be taken from the ordinary lamp socket and the device is as easily attached as an electric fan. A small electric converter goes with each ozonizer.

Within the apparatus no chemicals are used and no foreign matter is introduced into the natural air. The whole plan and principle is simply the restoring of free ozone to the atmosphere by silent discharges of electricity. The amount of ozone generated is quite astonishing and was found sufficient by a physician to take the place of oxygen tanks and an inhaler in a severe case of pneumonia when oxygen was not procurable. Twelve hours after the ozonizer was started the patient's fever dropped two degrees and he was up and about in sixteen days.



The Ozonizer Makes a Miniature Noiseless Electric Storm, Releasing Free Ozone, which Purifies the Air

While the therapeutic use of this oxygen compound is established in Europe, our physicians have not yet become familiar with its application in disease, and simply for the want of a practical, portable generator. A number of sanitariums in various parts of the country are now adopting the ozonizer. Cold storage warehouses, dairies, department stores and factories are also finding this device valuable.

The installation at the National Park Bank consists of four large ozonizers in the intake chamber of the main supply fan, for which alternating current is secured from a two-horse-power converter. In all, six ozonizers are located in the main banking room and the offices, each equipped with its own small converter. Desk fans are used in connection with these for circulating the ozonized air. Another large ozonizer is located in the basement which is operated at night by a  $\frac{1}{2}$  horse-power converter for the night engineer.

An interesting experiment was made in the First National Bank of Chicago. A single ozonizer was installed in one of the rooms of the Auditor's Department where six employees were working. The individual weights and chest measurements of the men were taken when the ozonizer was installed and again at the end of sixty days, when it was found that every one of the men

had improved in weight as well as in chest expansion.

A recent installation of ozonizers that has attracted public attention is their introduction by several justices who preside in the old "Tweed" Court House. Ever since its opening, the ventilation of that notorious "public work" has been criticised and the sick list among its employees has always been high.

Several weeks ago, one judge had an ozonizer installed experimentally, and so noticeable was the improvement, that before the week was out a second justice purchased one.



Ozonizers in the National Park Bank. The Air is Taken Through a Screen Behind the Ozonizers, and After Receiving the Free Ozone, is Drawn into the Bank by an Exhaust Fan



## The Psychology of Window Lighting

THE basis of all advertising is psychology, and in the end the man who gets the most business is the best psychologist. The late William James, who wrote a similar one, traveling over the same nerve path, will rouse the latent knowledge derived from former experience, just as a piece of paper once folded, and then smoothed,



This Florist's Window on 125th Street is Lit by Five 100-Watt Lamps in Shallow Distributing Type Reflectors. In each Corner of the Windows are Four Brackets, Containing Plain Sixteen-C-P Lamps

text-books that read like fiction, while his brother Henry composes novels that might be classed as treatises on psychology, gives a very simple explanation.

An impression, carried to the brain over the nerves, makes a minute impression on the gray matter. After this first impression has been given,

tends to fold again in exactly the same line.

Reduced to commercial terms, if a customer sees some advertisement of a breakfast food, for example, whether he will or not, the impression has been stamped on his brain. The next time he wants some cereal, whether he will or no, his gray mat-

ter will direct him to the one with which he has already had mental experience. The question for advertisers then becomes, what forms of display will leave the deepest impression on the brain cells of the average consumer.

Illumination has come to be classed as one of the best means. There is

music, the intermingling of comedy and pathos in a play prove this.

Store-lighting gives an opportunity for contrast. There is the darkness of surrounding space, out of which the illuminated object shows clearly. This makes the strongest kind of appeal to the attention. To keep the attention once



Thirty-two Sixteen-C P Lamps Light this Window. Sixteen are Frosted and the Rest in Reflectors. The Lights are About Ten Feet Apart and Eight Feet Above the Plane of Illumination. The Canopy Over the Entrance Contains Twenty-two Frosted Sixteen-C P Lamps

always the practical advantage that goods clearly displayed are most attractive. But there are further advantages which go straight back to psychology. It does not need a learned professor to tell us that contrast is one of the surest methods of gaining and holding attention. The varying of a church service with

gained, the principles of variety and association may be employed. Space prevents a description of the various arrangements and devices used. Enough, however, has been said to indicate that illumination is a successful advertising medium, because it follows the psychologist's rules to attract and hold attention.

## An Electric Timekeeper

**A** TIME recorder—one that will print the time plainly and accurately to the minute—is indispensable to manufacturing and business houses. As in nearly everything else pertaining to facilitating and systematizing the manufacture and sale of products, electricity has come to the rescue. In this instance

mon use, the regulation time-stamp for general office use, the factory time-cost keeping stamp, and the employes in-and-out recorder.

In an office, where correspondence, orders, data to be filed and other similar matter must pass through various hands, it is essential that the time at which various papers were

received by each person be recorded on them to guard against delays, or to locate the delays when they do occur. This is the field of the general office stamp.

Only in recent years has the labor-cost question assumed a place of particular importance in the mind of the manufacturer. The cost of material is easily ascertained, but the cost of labor is the uncertain and often unknown factor. How to find out the exact time a workman spends on a piece of work or on



**The Chronograph for General Office Work, Such as Stamping the Time on Mail and Other Papers on Which a Record of Time is Necessary. All Chronographs are Kept in Perfect Time by a Synchronizing System, Governed by a Master Clock.**

the demand seems to be very satisfactorily met by the electric chronograph, several types of which are made by the Stromberg Company.

The chronograph provides a synchronized recording system, by which any number of instruments, either one or a hundred, located at different places are controlled by one master clock and thereby kept in perfect agreement. There are three different kinds of the chronograph in com-

a part, how to locate any waste time, is what the manufacturer wants to know. Special chronograph models have been devised to meet the wants. One type records the time on the individual job tickets, while another stamps the hour and decimal part of an hour on the daily time ticket for a man working on a number of operations during the day.

In manufacturing mercantile establishments, where a considerable

number of people are employed, some system of recording their arrival and departure is essential to insure full return for the pay-roll expenditure and to enforce punctuality, regularity and discipline. For this there is the in-and-out card time recorder.

Some of the in-and-out recorders, while simple enough in operation, give records that are far from simple and which require a vast amount of time and labor on the part of the timekeepers to translate and reduce to plain net figures.

From the chronograph records, however, the employes' net time and wages can be computed with very little calculation, and the pay-roll made up from the original records. All changes in the in-and-out recorder are made automatically and it is also impossible for an employee to stop the mechanism by holding down the lever.

The electric synchronizing time system makes it possible for one of these to be placed in every department, so that the minutes consumed by an employee after getting in the building, putting on working clothes and getting to his department, is not a dead loss to the company, as is the case where clocks are placed at the general entrance. For example, if a factory employs five hundred hands, and each one consumes ten minutes in the morning and ten minutes in the afternoon for changing clothes

on entering, and ten minutes for the same process on leaving for lunch and on leaving at night, that would amount to forty minutes a day for one employee and more than three hundred hours a day for the entire force. This great waste of time would never show on recorders placed at the main door, but would show on those placed in each department.

Besides factories and large retail and wholesale stores the chronograph is used in hotels, telephone exchanges,



**This Type of the Chronograph Keeps Time-Cost, thus Enabling the Employer to Obtain an Exact Knowledge of the Cost of Labor, which is Very Often an Unknown Factor, or which at Least Requires Time and Skill to Calculate Correctly**

telegraph offices, railroad offices, parcel rooms, brokers' offices, and by the U S Government in the Navy, Army, Treasury and four other departments.

The hands of the clock dial on the chronograph are geared to the interior mechanism which has no pawls, springs nor dogs to get out of order and the printing wheels are locked, thus preventing their movement except when actuated electro-magnet-



ically, receiving the impulse from an electric current which is controlled by an automatic make-and-break device attached to the master clock. Any ordinary office time-piece having a second hand can be utilized for the master clock, but to give perfect satisfaction it should be the best procurable.

### Edison Service and the Telephone

AN interesting comment on both the growth of electric lighting in New York and the development of the telephone is afforded by the recent compilation of telephone statistics of The New York Edison Company. In 1886, a single instrument in the old Pearl Street office was sufficient to handle the infant electric lighting business.

DAY	MORNING		AFTERNOON		OVERTIME	
	IN	OUT	IN	OUT	IN	OUT
27	27	12 01	12 30	5 17		
27	16	12 05	12 27	5 15	5 57	9 31
27	30	12 04	12 25	5 28		
27	21	12 03	12 31	5 27	5 00	9 35
27	14	12 10	12 28	5 17		
27	28	1 07				
28	00	12 00				

Total Ending: *Aug 30 049*  
 Regular Time: *5 PM 12 20* Rate: *\$10.25*  
 Overtime: *11* Rate: *\$3.20*  
 Total Wages: *\$13.45*

An Employee's Time-Card, Used with the In-and-Out Recorders, Showing Arrival and Departure for a Week and Overtime

Now, at the main office, at 55 Duane Street, there are fifty-one trunk lines to the nearest exchange.

In the main office and branch offices together are twelve private exchangeswitch boards, 127 trunk lines, and forty-three "tie lines" which make the inter-office connections. In addition to this, there are 535 extension telephones which are kept busy day and night.



The In-and-Out Time Recorder, Placed in Each Department of a Large Concern, Saves the Company the Time Consumed by the Employees in Changing from Street Clothes to Working Clothes. The Picture Shows the Employees Stamping Their Time-Cards and all Ready to Start Work

## An Electric Drink Mixer

**W**E have all by this time become somewhat used to the ubiquity of electricity. It cooks our breakfast, takes us to work and lights us to bed. But the latest manifestation of the ever-present current is this: electricity can henceforth mix our drinks.

For some time past the mixed drinks which are concocted at soda fountains have been gaining in popularity. In their search for a proper mid-day sustainer, a great many people have hit upon the milk and egg mixtures sold by the soda fountains. This meets the requirements of a light lunch, since while giving the proper amount of nourishment these mixed drinks take almost no time to be served.

As this custom has increased in popularity, one of the problems of the druggists has been the mixing of these elaborate concoctions. The most common device employed in the past has been the ordinary hand shaker which requires a regular calisthenic exercise every time a drink is made and besides is slow, for after every drink is mixed the shaker has to be washed and dried. When the hand shaker becomes old it also leaks around the cover, and unless the attendant is careful it is apt to come off entirely and give him an impromptu douche.

The new electric drink mixer is so constructed that all of these difficulties are eliminated. It does the trick thoroughly in twenty seconds

and does not require cleaning between drinks. The ingredients are placed in a glass and the glass set in the holder. A small metal shaft is lowered into the liquid which is scarcely disturbed on the surface by the mixing. It consists of a small upright shaft mounted on an onyx base. A small motor is fastened at the top of the shaft from which descends the mixing shaft.

This device is especially adapted for making malted milk and egg drinks, while for household use it makes excellent salad dressing, whips cream and beats eggs.



**An Electric Drink Mixer, Used at  
More Than 200 Soda Fountains**

### Electrics on the Pacific Coast

ONE of the latest indications of the widespread favor into which electric pleasure vehicles have come is the large number of them now in use on the Pacific Coast. About seven hundred electric vehicles are on the streets of various cities and towns of the Pacific States, according to a statement made by the *Electrical World*. The largest number is in Los Angeles, where there are between three hundred and fifty and four hundred pleasure vehicles.

San Francisco is one of the places where, on account of the steep grades of many of the streets, one might perhaps not expect to find electric vehicles in favor. But such is not

the case. Mr Cuyler Lee, agent for the Waverley cars in San Francisco, vouches for the popularity of the pleasure vehicles there, and since Mr Lee also acts as agent for the Packard gasoline car, his statement can certainly be regarded as impartial.

"Up until about a year ago," Mr Lee states, "this city was far behind the rest of the country in the use of electric vehicles. This was due particularly to the fear that they would not climb the steep grades. After a long, up-hill fight,



Interior of the San Francisco Salesroom of the Waverley Electric



Exterior of the San Francisco Headquarters of the Waverley Electric. The Packard Car Shares This Salesroom with the Waverley



the electric manufacturers have been able to show that their vehicles would do all that was required of them, so that now this branch of the motor-car business is picking up rapidly. The climate of San Francisco is such that enclosed cars can be used all the year round, so that the brougham and coupe are very popular types, although many open cars are sold."

## Electric Pleasure Vehicle Association

**W**ITH this progress recorded in the West comes the news of an organization here in the East, devoted to electric pleasure vehicles exclusively. The new society is known as the New York City Association of Electric Vehicle Dealers and has been formed to popularize electric pleasure vehicles in New York City.

The new organization includes in its membership those interested in the cars, batteries, tires and acces-

sories peculiar to electric pleasure vehicles. A publicity campaign is to be undertaken this Spring and the coming Fall to impress on the residents of New York the superiority of electric pleasure vehicles for city use. On March 27 it was proposed to raise a fund of \$7,500 among fifteen contributors, to be expended in a ten weeks' campaign.

A recent business meeting of this new body was held under picturesque conditions. Mr Weatherby, of the Detroit Electric, presided, in the car which he sells. Mr Wise, of Rauch & Lang, and Mr Platt, of the Baker Electric, and other members came like knights of old to a tournament, upon their steeds, which happened in this case to be electric autos.

The officers and directors of the new organization are: President, Mr Albert Weatherby, Anderson Carriage Company, vice-president, Mr Harvey Robinson, New York Edison Company; secretary, Mr C Y Kenworthy, Rauch & Lang Car-

riage Company. Directors: R R Clayton, Studebaker Automobile Company, N Platt, Baker Motor Vehicle Company, W S Brown, R S Bailey & Company, A W Blanchard, Jr, Waverley Company, and C E Humphrey, Woods Motor Vehicle Co.



The Waverley Roadster that Traveled from Philadelphia to the Automobile Show in New York



## The City's Model Police Station

THE new headquarters of the First Precinct in Old Slip opened its doors for business on February 24th. This Police Station, recently completed, is generally admitted to be the finest in the

date back to the days when our grandparents were children and gathered wild-flowers where tall skyscrapers now stand. However, this division has not always been known as the First Precinct and its new



The Muster Room, Old Slip Police Station. This is Excellently Lighted by Six Chain Fixtures of Five Globes Each, Six Wall Brackets and Two Desk Chandeliers

city. Its arrangements have been most carefully planned for every phase of police service requirements, so that the new Old Slip station house can well serve as a model for other cities.

The Old Slip Precinct is one of the oldest in New York. The entries made on its earliest blotters

home is the third one it has occupied in comparatively recent years.

When the river extended up to Water Street, the site of the present station house was many feet under water and, like the territory along this portion of the river-bank, was afterward redeemed from the waves. In those times the Old Slip Precinct

was housed in New Street and in 1883 moved into other quarters at precisely the same site of the present building. That structure was evidently built to withstand both time and tide, for some of the granite blocks weighed as much as five tons.

Although not so massive in composition the new station house is more artistic in its outer aspect. It stands on an oblong plot of

opens directly into the muster room, shown in the picture on page 368, which has a wainscoting of marble with white tile above it. In this room are the oaken cabinets in which records and papers are kept.

On the left of the muster room are the doors leading to the cells. There are three tiers of eight cells each for male prisoners, surrounded by a partition of iron bars running



**Cellar, Old Slip Police Station. At the Left is Shown the Motor which Automatically Pumps out the Sump after a Rainstorm. The Tank is an Auxiliary to One on the Roof**

ground in the center of Old Slip, which is nothing more nor less than a very broad street, so that all four sides are open to air and sunlight. On the south side are three pairs of massive bronze doors, one opening into the garage, another into the arcade through which the patrol wagon passes, and another which

from floor to ceiling. The cell doors are huge steel grates and in addition to the spring lock, which snaps the instant the door closes, there is the "dead-lock" which would defy the cunning of the most clever jail-jumper. For female prisoners there are five cells with the matron's quarters directly above them.



Courtesy of "Popular Electricity"

Electrically Operated "Pulmotor" Used to Resuscitate Miners Overcome by Gases

## Electricity in Mine Rescue Work

**E**LECTRICITY is playing a most important part in the work of the newly formed Federal Bureau of Mines. This institution is to examine especially into the causes of mine accidents and to direct the rescue work that follows any catastrophe.

The field staff of the Bureau of Mines is literally on wheels, since rescue work is organized from six specially equipped mine rescue cars. "Each car," according to Mr. Waldon Fawcett in *Popular Electricity*, "has its headquarters in the central town of an extensive mining district. It can be rushed, literally at a moment's notice, to the scene of any mine disaster, and is accordingly provided with stretchers, stocked with medicine, and the men who comprise the crew of each car, including a Red Cross surgeon, eat and sleep on board so that the car can leave at any hour, day or night.

"Conspicuous among the utilities

are a number of portable electric lamps of a special pattern. The presence in the atmosphere of a mine of poisonous gas in a proportion even so low as five per cent. will result in extinguishing the flame of not only the ordinary miner's lamp but likewise that in the latest approved form of safety lamp. Consequently the electric lamps must be depended upon to furnish the illumination for all rescue work.

"There are several novel features in connection with the electric lamps on the mine rescue cars. In order to conserve the current in the storage batteries the illuminating power is limited to a few candle-power, but it has the aid of a powerful reflector. Two tiny bulbs are placed side by side in each lamp. The current may be switched from one to the other in a second, but it is the intention to have one lamp burn for about four hours and the other burn for about an hour.

"The purpose of the dual bulbs is to have the lamp automatically give



Oxygen Helmet in Which There is Also a Telephone Enclosed

notice, so to speak, to the rescue worker using the lamp that its supply of current for illumination is well nigh exhausted, and yet not cut off his illuminant suddenly, as would be the case with any ordinary lamp. His reserve of one hour's illumination from the second of the twin bulbs enables him hurriedly to complete the work in hand or to arrange matters for a temporary absence while a freshly charged lamp is being secured. The electric lamps provided for the new cars are small but very heavy, in order to withstand the hard usage they sustain mid the rocks and debris of wrecked mines.

"The telephone figures in the rescue outfit. There is on each car a field telephone with 2,000 feet of wire, while the telephone is being made use of in the most ingenious manner in connection with the so-called oxygen helmets, eight of which, costing \$200 apiece, are included in the equipment of each car. Inside the helmet is fastened a telephone transmitter, while a receiver is attached to the ear of the rescue



**Electric Hand Lamp Used by Rescue Crew. The Construction is so Strong the Lamp Can be Hurled on a Concrete Pavement**

worker when he has donned his modern coat of mail. By means of this artery of communication a rescue worker descending into a mine after a disaster is constantly in touch with the men at the surface.

"Of the electrical innovations provided for the mine rescue work, however, perhaps the most wonderful is the 'Pulmotor.' This is a recent German invention and the only machines yet brought to this country are the ones installed at a cost of \$800 each on the mine rescue cars.

"The apparatus can readily be carried by one man and in actual service it is carried into the mine in order that its aid may be available the minute discovery is made of men overcome by the after-gases of an explosion. The Pulmotor might almost be denominated an automatic breathing machine, its function being to draw the poisonous gases out of the lungs and to force into the lungs, in turn, the life-giving oxygen. Although the new type of life restorer has been in use but a short time, it has already accomplished life-saving work that is almost miraculous."



**Charging the Electric Lamps. The Outfit May be Connected with any Direct Current**



# An Electric Apartment



Cooking at the Table with an Electric Chafing Dish

THE first suggestion for electric cooking comes from no less a man than Benjamin Franklin, in the year of grace 1769, seven years before the Declaration of Independence. From the notes in Franklin's diary we read: "Chagrined a little that we have been hitherto able to produce nothing in the way of use to mankind, and the hot weather coming on, when electrical experiments are not so agreeable, it is proposed to put an end to them for this season, somewhat humorously, in a party of pleasure on the banks of the Schuylkill.

"Spirits at the same time are to be fired by a spark sent from side to side through the river, without any other conductor than the water; an experiment which we some time since

performed to the amazement of many. A turkey is to be killed for our dinner by the electrical shock, and roasted by the electrical jack, before a fire kindled by the electrical bottle; when the healths of all famous electricians in England, Holland, France and Germany are to be drunk in electrified bumpers, under the discharge of guns from the electrical battery."

Following this whimsical outline, the philosopher adds that he himself was forced to admit that "the birds killed in this manner ate uncommonly tender." One is left to wonder whether Franklin was indulging his sense of the grotesque or whether the father of electricity had actually amused himself by executing electrically the fowls for his supper.

At any rate, it is a far cry from



The Luminous Radiator for Extra Heat in the Parlor

1769 to 1911; while we do not as yet electrocute our turkeys and chickens, the rest of Franklin's prophecy has all come true. How far electricity has become of use to the household is being cleverly demonstrated by the Heating Department of this Company.

A four-room apartment has been leased, and beginning the last week in March the public has been shown a household electrically equipped and operated throughout. The location chosen for this demonstration was "The Marble Hill," one of the new apartments in the new up-town residence section, between Washington Heights and Spuyten Duyvil.

The four-room apartment selected is furnished to suit the actual living conditions of a small family, with just such electrical apparatus as is really useful. In the parlor are handsome lighting fixtures and reading

lamps, while a luminous radiator provides extra heat sometimes desirable even in the best apartment houses.



Toast Made at the Breakfast Table with an Electric Toaster



The Electric Coffee Percolator in the "Marble Hill" Demonstration

The dining room presents what are referred to in the trade as the smaller "cooking units," namely, chafing dishes, percolators, tea-pots, toasters and the little disc stoves. Every afternoon tea has been served to the public, and some special dish cooked at the tea-table, to demonstrate the practicability of electric cooking devices for the home that boasts no waitress.

The larger heating units, such as the three-griddle range and the smaller "hot plate," were on view in the kitchen and were in use every single day for several hours. The waffle-iron completed the culinary apparatus, while the vacuum cleaner took the place of the broom, and an electric flat-iron graced the shelves of the

dresser. Such devices as the electric dish-washer, suitable for very large households, were purposely omitted, it being the object to show what is suitable for the ordinary family.

In the bedroom was every sort of apparatus from the new little electric curling iron, which has been on the New York market only since Christmas, to the different types of vibrator for massage. There was also a nursery milk-warmer, a heating pad, such as is now replacing hot-water bottles in many of the most progressive hospitals in this country, and an electric hair dryer, in which the heat and air current is electrically produced, completed the equipment.

### **Yale Seniors Visit New York Light and Power Plants**

A PARTY of sixty-eight Sheffield seniors from Yale University recently visited New York as the guests of the New York Edison Company, to inspect various inter-

esting engineering projects of the greater city. An entire morning was devoted to the two Waterside stations of this Company, where nine-tenths of the electric current used in Manhattan is generated.

An electrically cooked luncheon was served the party at the Edison Auditorium, under the direction of the Heating Department, after which brief talks were given by Mr Thomas Murray, Mr John W Lieb, jr, Mr Arthur Williams, and Professor Roe, who represented the Yale faculty.

The party then embarked on a tug and were taken to Astoria, where they were entertained by Mr Gawtry, of The Consolidated Gas Company, and made an inspection of the large gas manufacturing plant which supplies New York City. Embarking again the party were taken through the Harlem Ship Canal and down the Hudson River to Fifty-ninth Street, where they landed and were taken through the great power house of the Interborough Company.



Sixty Yale Students Visiting the Plant of The New York Edison Company



Charlottenburg Bridge, Berlin. Note the Combination: Light, Mail, Police and Fire-Alarm Box to the Left. A Suggestion of the Street Fixture Committee, Municipal Art Exhibit

## Street Fixture Improvements

**T**HE problem of eliminating the unsightly letter box which one sees on so many of our street corners has occupied much of the attention of the Street Fixture Committee of the Municipal Art Society. At the recent exhibition held in the rooms of the National Arts Club in East Nineteenth Street several designs were shown.

The problem has arisen from the removal of the old lighting fixtures to make way for the new electric poles on the principal streets.

The letter boxes then in use were so constructed that they could not be attached to the new poles, and for that reason on many of the crossings the old beheaded lamp post is still found beside the newer electric fixture. The sight is not beautiful; and the sidewalk is needlessly cumbered.

One of the designs shown at the Municipal Art Exhibit was a bronze box so constructed that it could be used with the new fixtures and harmonize with the general design. Another combination box sold stamps of all denominations, and combined receptacles for letters and packages. Still another, the suggestion of an advertising company, sold not only stamps, but souvenir postal cards, and gave directions to the nearest places in the neighborhood.

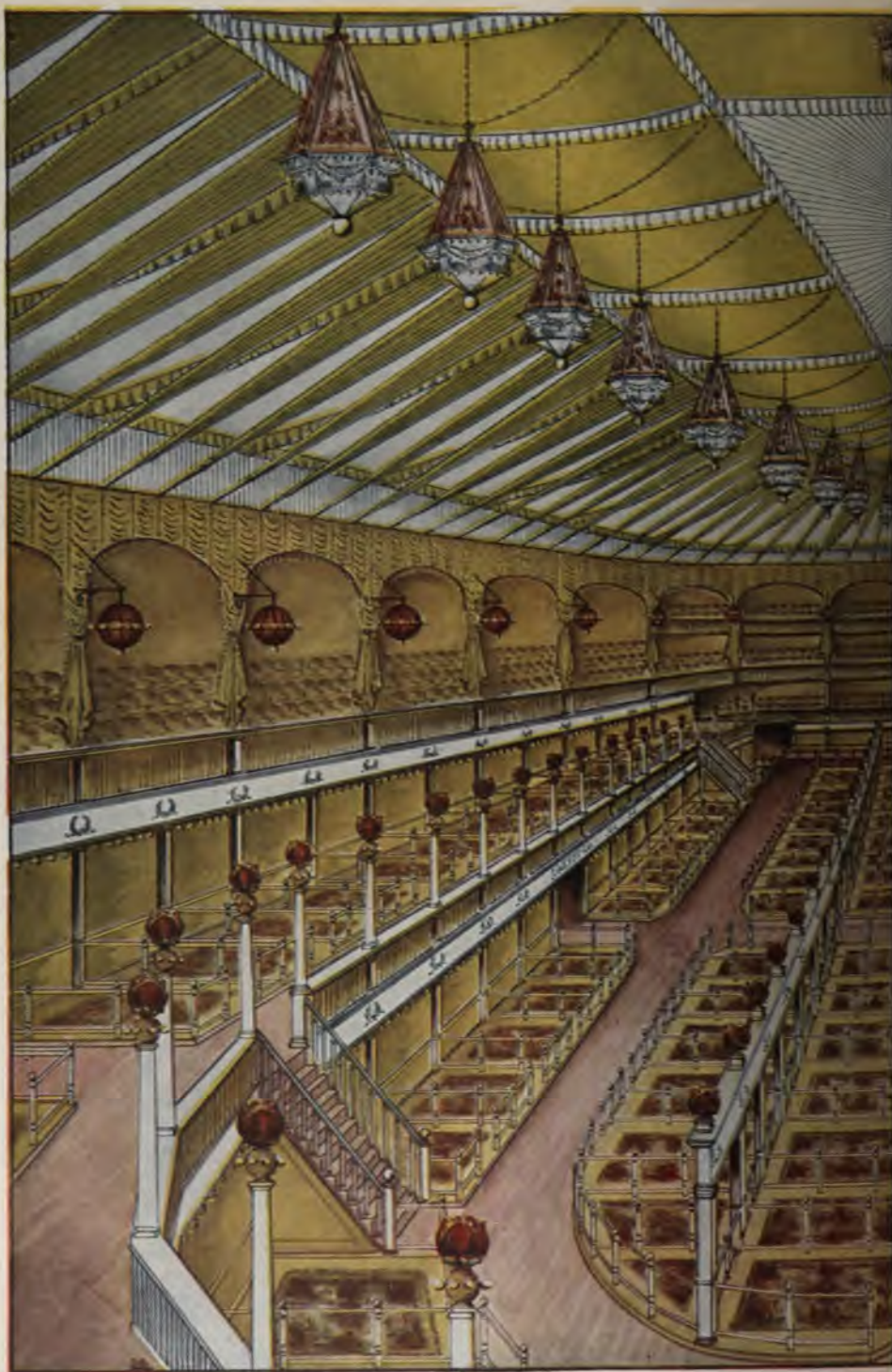
A combination lighting fixture, letter box, fire alarm station and police call was considered, but was found impracticable for adaptation here. Such fixtures are in general use in many European cities and add greatly to the beauties of the municipality. In the picture is shown the approach to the Charlottenburg bridge, Berlin, with its two monumental fixtures.

"We are all democratic when we are hard up." —*The Silent Partner*.





.



Setting for the Fourth Annual New York Electrical Show



on Square Garden, October 10th to 20th Inclusive



3  
4  
5  
6  
7

8  
9  
10

11



55 DUANE STREET NEW YORK







# THE EDISON MONTHLY

THE NEW YORK  
PUBLIC LIBRARY  
ASTOR, LENOX AND  
TILDEN FOUNDATIONS

JULY



1910

THE NEW YORK EDISON COMPANY  
55 DUANE STREET NEW YORK

## WIRING AND INSTALLATION CONTRACTORS

### West of Broadway and Fifth Avenue

Amsterdam Ave 452—C A Christesen  
Amsterdam Ave 445—H Blumstetter  
Broadway 335—Park Sullinger  
Broadway 374—J S Bihin  
Broadway 593—E W Hirsch  
Broadway 725—L F Benn  
Broadway 1170—The Chas I. Eidlitz Co  
Broadway 1269—S W Electric Co  
Broadway 2270—A Ostrom Rowe  
Broadway 2382—H S Beideman  
Broadway 2742—H Reinwald Jr  
Church St 56—L K Comstock & Co  
Columbus Ave 220—T F Carr & Co  
Columbus Ave 549—Hoffman & Elias  
Columbus Ave 649—F Craske  
Cortlandt St 26—Cleveland & Ryan  
Cortlandt St 39—Blackall & Baldwin  
Cortlandt St 39—Berg & Co  
Cortlandt St 39—Electric Cons & Supply Co  
Cortlandt St 84—Bleye Elec Co  
Duane St 172—Jas F Hughes Co  
Eighth Ave 2719—Franklin Elec Co  
Fifth Ave 65—L A Whitney Elec Co  
Fifth Ave 75—H M Walters  
Fifth Ave 563—Flucker & Keedwell  
Fifth Ave 571-573—Hatzel & Buchier  
Greenwich St 183—Thomas & Johnson  
Greenwich St 207—F A Frey  
Greenwich St 255—F C Ross  
Hudson St 66—Edw S Eaton  
Sixth Ave 110—J V Johnson  
Sixth Ave 419—C A Pinkham  
Sixth Ave 617—Zenker & Siems  
Sixth Ave 780—C C Bohn Electric Co  
Sixth Ave 943—John M Flint  
Seventh Ave 192—Emil Christensen  
Seventh Ave 727—Conduit Wiring Co  
Seventh Ave 2260—Nathan Zolinsky  
Thames St 27—Watson Flagg Eng Co  
Thames St 27—McLeod Ward & Co  
Varick St 132—Eugene P Etzel  
Warren St 73—J P Hall  
Warren St 97—Wm F Duffy  
Warren St 97—Independence Electric Co  
West St 116—Knickerbocker Electric Co  
West St 463—Western Elec Co  
West 14th St 130—The Electrical Contracting Co  
West 17th St 156—Harry A Hanft  
West 21st St 35—W J McClure & Co  
West 26th St 54—Louis Freund  
West 27th St 26—Payne Hayden Co  
West 28th St 11—Thos L Dillon  
West 30th St 110—Tucker Elec Con Co  
West 30th St 111—Landous Elec Equip Co  
West 31d St 200—E J Elec Installation Co  
West 34th St 45—Peet & Powers  
West 38th St 39-41—Dennis G Brussel  
West 38th St 72—A J Buschman Co  
West 42d St 25—Russell Haynes Electrical Co  
West 42d St 29-33—Germond & Turner  
West 42d St 112—Oberg Blumberg & Bleyer  
West 45th St 160—F A Bohling  
West 46th St 422—Frank Fisch  
West 61st St 120—J L Moriarty  
West 72d St 170—T J Kaufman & Co  
West 111th St 147—Mariposa Electric Co  
West 116th St 227—Lewis S Davis  
West 134th St 314—M Kohosoff  
Wooster St 12—Durbrow & Hearne Mfg Co

### East of Broadway and Fifth Avenue

Beckman St 74—Jordan Bros Inc  
Broome St 105—B H Weinberg  
Cedar St 16—Wm Truswell & Son  
Dover St 8—E W Hazazer  
East 7th St 138—H A Schreiber

East 9th St 65—George D Beinert  
East 9th St 51—B W Sandbach & Co  
East 22d St 27—Hunt & Morgan  
East 22d St 113—J Livingston & Co Inc  
East 23d St 15—Forsth Elec Co  
East 23d St 45—Kimball Elec Construc Co  
East 23d St 145—Bateman & Miller  
East 25th St 122—Isador Fayans  
East 28th St 114—Burkart Elec Co  
East 30th St 13—Geo H Shuman  
East 37th St 207—Reis & O'Donovan  
East 42d St 37—Edwards Elec Con Co  
East 42d St 45—Cowden & DeYoung Inc  
East 55th St 14—Morris Levi & Co  
East 57th St 420—Behlert Elec Co  
East 59th St 57—Stanley & Ruth  
East 72d St 157—E J Tustman  
East 77th St 440—Edw Zenker  
East 80th St 170—M Strompf  
East 125th St 13—L L Strauss  
East 125th St 31—Leo S Stern  
East 125th St 77—Peter Jansen  
Frankfort St 27-30—J F Bidstrup & Co  
Fulton St 44—E Klein & Bro  
Fulton St 49-50—Fulton Electric Co  
Fulton St 227—Edward B Scott & Co  
Fulton St 237—General Electric Inspection Co  
Gold St 20—Mfrs & Inventors Elec Co  
Grand St 209—Nathan Klein Co  
Grand St 235—Joseph Wainrob  
Great Jones St 5—Bolton Elec Co  
Great Jones St 30—Geo Weber & Bro  
John St 52—Alfred Whiteley  
Lexington Ave 1249—J E Woelfe  
Liberty St 123—Curt Kastner  
Liberty St 120—S Arthur Brown  
Madison Ave 314—Nimis & Nimis  
Madison Ave 959—Kendelhardt & Morris  
Madison Ave 1122—F W Cohn  
Park Ave 103—Stehlin-Miller-Henes Co  
Park Ave 1630—Guarantee Electric Co  
Pearl St 59—Oswald Elec & Eng Co  
Rose St 35—Geo Wiederman Elec Co  
Third Ave 221—Maurice Young  
Third Ave 670—Silverman Bros  
Third Ave 1021—E Kalkan  
Third Ave 1890—Parker & Cooley  
Wall St 2—Edwin C Gee  
Wall St 71—Fleck Co M F  
Wall St 99—Chas Davidson

### Bronx

Baker & Fox—313 E 141st St  
Blackman & Guttman—226-28 East 144th St  
Bogan Irving A—4192 Park Ave  
Evans & Kaestner—893 Intervale Ave  
Hinners F J Jr—585 East 135th St  
Israel & Co—450 East 148th St  
Kips John—161st St and 3d Ave  
Kirschhoff C Arthur—584 East 163d St  
Landy Jacob—673 Elton Ave  
Mangum H I & Co—333 East 102d St  
Ross E L—356 East 138th St  
Ryan Geo E—603 Tremont Ave  
Schwarzler M & Son—460 E 167th St  
Vielberth Jos F—1243 Taylor Ave  
Wienecke Louis—893 Faile St  
Woods Lewis H—2355 Jerome Ave

### Yonkers

Excelsior Gas & Elec Fixture Co—42 Warburton Ave  
Imrie & Underhill—Bronxville N Y  
Nugent A W Co Inc—83 Warburton Ave  
Seaboard Elec Co—12 N Broadway  
Westchester Elec Equip Co—34 N B'way



# The New York Edison Company

## GENERAL OFFICES 55 Duane Street

Telephone TRINITY 1-1111

100 West 42nd St.	TRINITY 1-1111
100 Broadway	TRINITY 1-1111
100 West 42nd St.	TRINITY 1-1111
100 West 42nd St.	TRINITY 1-1111
100 West 42nd St.	TRINITY 1-1111
100 West 42nd St.	TRINITY 1-1111
100 West 42nd St.	TRINITY 1-1111
100 West 42nd St.	TRINITY 1-1111

## EMERGENCY NIGHT AND SUNDAY CALL—BRYANT 145

### Territory served by the Various Supply Offices

FIRST DISTRICT—100 WEST 42ND ST.  
Avenue from 100 West 42nd Street East  
to 100 West 42nd Street

TELEPHONE N. STEIN 1-1111

SECOND DISTRICT—100 WEST 42ND ST.  
Avenue from 100 West 42nd Street East  
to 100 West 42nd Street

TELEPHONE N. WORTH 1-1111

THIRD DISTRICT—100 WEST 42ND ST.  
Avenue from 100 West 42nd Street East  
to 100 West 42nd Street

TELEPHONE N. BRYANT 1-1111

FOURTH DISTRICT—100 WEST 42ND ST.  
Avenue from 100 West 42nd Street East  
to 100 West 42nd Street

TELEPHONE N. PIVERSIDE 1-1111

FIFTH DISTRICT—100 WEST 42ND ST.  
Avenue from 100 West 42nd Street East  
to 100 West 42nd Street

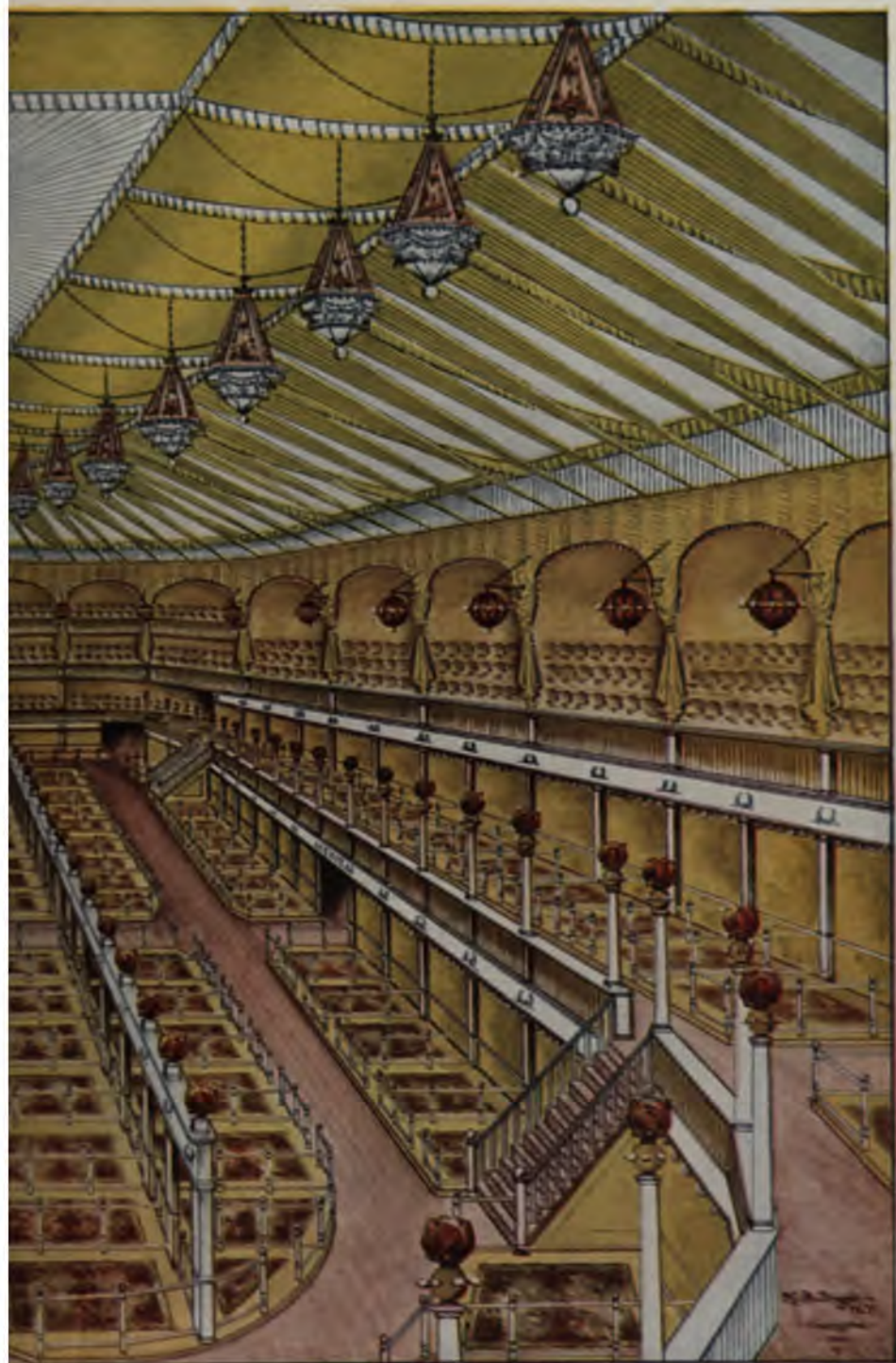
TELEPHONE N. MELROSE 1-1111



*"At Your Service"*







ison Square Garden, October 10th to 20th Inclusive





55 DUANE STREET NEW YORK





2

1910

THE NEW YORK  
PUBLIC LIBRARY  
ASTOR, LENOX AND  
TILDEN FOUNDATIONS

# THE EDISON MONTHLY

JULY



1910

THE NEW YORK EDISON COMPANY  
55 DUANE STREET NEW YORK

# The New York Edison Company

## GENERAL OFFICES

55 Duane Street

Telephone Worth 3000

### BRANCH OFFICES TELEPHONE

115 Delancey St	:	:	Orchard 1960
124 West 42d St	:	:	Bryant 5262
839 Third Avenue	:	:	Plaza 6543
27 East 125th St	:	:	Harlem 4020
360 East 149th St	:	:	Melrose 3340

EMERGENCY NIGHT AND  
SUNDAY CALL—BRYANT 145

### *Territory Served by the Various Supply Offices*

FIRST AND DELANCEY STREET  
DISTRICT, 546 PEARL STREET  
All territory South of Eighth Street from  
the East to the North River  
TELEPHONE No WORTH 3000

SECOND DISTRICT  
115 WEST 39th STREET  
Eighth Street to Fifty-ninth Street, both  
inclusive, from the East to the North River  
TELEPHONE No BRYANT 145

THIRD DISTRICT  
173 WEST 107th STREET  
North of Fifty-ninth Street from East to  
North River to and including One Hun-  
dred and Thirty-sixth Street, east of St  
Nicholas Avenue, and to the south side  
of One Hundred and Thirty-fifth Street  
west of St Nicholas Avenue  
TELEPHONE No RIVERSIDE 4889

BRONX DISTRICT  
140th STREET AND RIDER AVE  
All territory lying within the Borough of  
the Bronx  
TELEPHONE No MELROSE 3330



*"At Your Service"*



3

4  
AUG 10 1910

THE  
EDISON  
MONTHLY

ENTERED SECOND CLASS  
JAN 1 1909  
POST OFFICE DEPT.  
NEW YORK

AUGUST



1910

THE NEW YORK EDISON COMPANY  
55 DUANE STREET NEW YORK

# The New York Edison Company

## GENERAL OFFICES 55 Duane Street

*Telephone Worth 3000*

<i>BRANCH OFFICES</i>	<i>TELEPHONE</i>
424 Broadway : :	Spring 9890
115 Delancey St : :	Orchard 1960
124 West 42d St : :	Bryant 5262
839 Third Avenue : :	Plaza 6543
27 East 125th St : :	Harlem 4020
360 East 149th St : :	Melrose 3340

## EMERGENCY NIGHT AND SUNDAY CALL—BRYANT 145

### *Territory Served by the Various Supply Offices*

FIRST DISTRICT, 424 BROADWAY  
All territory South of Eighth Street West  
of the Bowery  
TELEPHONE No SPRING 9890

DELANCEY STREET  
DISTRICT, 546 PEARL STREET  
All territory South of Eighth Street East  
of the Bowery  
TELEPHONE No WORTH 3000

SECOND DISTRICT  
115 WEST 39th STREET  
Eighth Street to Fifty-ninth Street, both  
inclusive, from the East to the North River  
TELEPHONE No BRYANT 145

THIRD DISTRICT  
173 WEST 107th STREET  
North of Fifty-ninth Street, from East to  
North River to and including One Hun-  
dred and Thirty-sixth Street, east of St  
Nicholas Avenue, and to the south side  
of One Hundred and Thirty-fifth Street  
west of St Nicholas Avenue  
TELEPHONE No RIVERSIDE 4889

BRONX DISTRICT  
143rd STREET AND RIDER AVE  
All territory lying within the Borough of  
the Bronx  
TELEPHONE No MELROSE 3340



*"At Your Service"*



# THE EDISON MONTHLY

SEPTEMBER



1910

THE NEW YORK EDISON COMPANY  
55 DUANE STREET NEW YORK

## 15

# THE EDISON MONTHLY

NOVEMBER



1910

THE NEW YORK EDISON COMPANY  
55 DUANE STREET NEW YORK

# The New York Edison Company

## GENERAL OFFICES

**55 Duane Street**

*Telephone Worth 3000*

### BRANCH OFFICES TELEPHONE

424 Broadway	:	:	Spring 9890
115 Delancey St	:	:	Orchard 1960
124 West 42d St	:	:	Bryant 5262
839 Third Avenue	:	:	Plaza 6543
27 East 125th St	:	:	Harlem 4020
360 East 149th St	:	:	Melrose 3340

**EMERGENCY NIGHT AND  
SUNDAY CALL—BRYANT 145**

### *Territory Served by the Various Supply Offices*

**FIRST DISTRICT, 424 BROADWAY**  
All territory South of Eighth Street West  
of the Bowery

TELEPHONE No SPRING 9890

**DELANCEY STREET  
DISTRICT, 546 PEARL STREET**  
All territory South of Eighth Street East  
of the Bowery

TELEPHONE No WORTH 3000

**SECOND DISTRICT  
115 WEST 39th STREET**  
Eighth Street to Fifty-ninth Street, both  
inclusive, from the East to the North River

TELEPHONE No BRYANT 145

**THIRD DISTRICT  
173 WEST 107th STREET**  
North of Fifty-ninth Street from East to  
North River to and including One Hun-  
dred and Thirty-sixth Street, east of St  
Nicholas Avenue, and to the south side  
of One Hundred and Thirty-fifth Street  
west of St Nicholas Avenue

TELEPHONE No RIVERSIDE 4889

**BRONX DISTRICT  
140th STREET AND RIVER AVE**  
All territory lying within the Borough of  
the Bronx

TELEPHONE No MELROSE 3330



**"At Your Service"**



7

# THE EDISON MONTHLY

DECEMBER



1910

THE NEW YORK EDISON COMPANY  
55 DUANE STREET NEW YORK

# The New York Edison Company

## GENERAL OFFICES 55 Duane Street

*Telephone Worth 3000*

<i>BRANCH OFFICES</i>	<i>TELEPHONE</i>
424 Broadway : :	Spring 9890
115 Delancey St : :	Orchard 1960
124 West 42d St : :	Bryant 5262
839 Third Avenue : :	Plaza 6543
27 East 125th St : :	Harlem 4020
360 East 149th St : :	Melrose 3340

## EMERGENCY NIGHT AND SUNDAY CALL—BRYANT 145

### *Territory Served by the Various Supply Offices*

FIRST DISTRICT, 424 BROADWAY  
All territory South of Eighth Street West  
of the Bowery  
TELEPHONE No SPRING 9890

DELANCEY STREET  
DISTRICT, 546 PEARL STREET  
All territory South of Eighth Street East  
of the Bowery  
TELEPHONE No WORTH 3000

SECOND DISTRICT  
115 WEST 39th STREET  
Eighth Street to Fifty-ninth Street, both  
inclusive, from the East to the North River  
TELEPHONE No BRYANT 145

THIRD DISTRICT  
173 WEST 107th STREET  
North of Fifty-ninth Street from East to  
North River to and including One Hun-  
dred and Thirty-sixth Street, east of St  
Nicholas Avenue, and to the south side  
of One Hundred and Thirty-fifth Street  
west of St Nicholas Avenue  
TELEPHONE No RIVERSIDE 4889

BRONX DISTRICT  
140th STREET AND RIDER AVE  
All territory lying within the Borough of  
the Bronx  
TELEPHONE No MELROSE 3330



*"At Your Service"*



8

# THE EDISON MONTHLY



JANUARY  
1911

THE NEW YORK EDISON COMPANY  
FIFTY-FIVE DUANE STREET - NEW YORK

# The New York Edison Company

## GENERAL OFFICES

55 Duane Street

Telephone Worth 3000

### BRANCH OFFICES TELEPHONE

424 Broadway	:	:	Spring 9890
115 Delancey St	:	:	Orchard 1960
124 West 42d St	:	:	Bryant 5262
839 Third Avenue	:	:	Plaza 6543
27 East 125th St	:	:	Harlem 4020
360 East 149th St	:	:	Melrose 3340

### EMERGENCY NIGHT AND SUNDAY CALL—BRYANT 145

### *Territory Served by the Various Supply Offices*

FIRST DISTRICT, 424 BROADWAY  
All territory South of Eighth Street West  
of the Bowery

TELEPHONE No SPRING 9890

DELANCEY STREET  
DISTRICT, 546 PEARL STREET  
All territory South of Eighth Street East  
of the Bowery

TELEPHONE No WORTH 3000

SECOND DISTRICT  
115 WEST 39th STREET  
Eighth Street to Fifty-ninth Street, both  
inclusive, from the East to the North River

TELEPHONE No BRYANT 145

THIRD DISTRICT  
173 WEST 107th STREET  
North of Fifty-ninth Street from East to  
North River to and including One Hun-  
dred and Thirty-sixth Street, east of St  
Nicholas Avenue, and to the south side  
of One Hundred and Thirty-fifth Street  
west of St Nicholas Avenue

TELEPHONE No RIVERSIDE 4889

BRONX DISTRICT  
140th STREET AND RIDER AVE  
All territory lying within the Borough of  
the Bronx

TELEPHONE No MELROSE 3330



*"At Your Service"*





9

# THE EDISON MONTHLY



FEBRUARY  
1911

THE NEW YORK EDISON COMPANY  
FIFTY-FIVE DUANE STREET - NEW YORK

# The New York Edison Company

## GENERAL OFFICES 55 Duane Street

*Telephone Worth 3000*

BRANCH OFFICES	TELEPHONE
424 Broadway :	Spring 9890
115 Delancey St :	Orchard 1960
124 West 42d St :	Bryant 5262
839 Third Avenue :	Plaza 6543
27 East 125th St :	Harlem 4020
360 East 149th St :	Melrose 3340

EMERGENCY NIGHT AND  
SUNDAY CALL—BRYANT 145

### *Territory Served by the Various Supply Offices*

FIRST DISTRICT, 424 BROADWAY  
All territory South of Eighth Street West  
of the Bowery  
TELEPHONE No SPRING 9890

DELANCEY STREET  
DISTRICT, 546 PEARL STREET  
All territory South of Eighth Street East  
of the Bowery  
TELEPHONE No WORTH 3000

SECOND DISTRICT  
115 WEST 39th STREET  
Eighth Street to Fifty-ninth Street, both  
inclusive, from the East to the North River  
TELEPHONE No BRYANT 145

THIRD DISTRICT  
173 WEST 107th STREET  
North of Fifty-ninth Street from East to  
North River to and including One Hun-  
dred and Thirty-sixth Street, east of St  
Nicholas Avenue, and to the south side  
of One Hundred and Thirty-fifth Street  
west of St Nicholas Avenue  
TELEPHONE No RIVERSIDE 4889

BRONX DISTRICT  
140th STREET AND RIDER AVE  
All territory lying within the Borough of  
the Bronx  
TELEPHONE No MELROSE 3330



*"At Your Service"*

10

---

THE EDISON  
MONTHLY



MARCH  
1911

THE NEW YORK EDISON COMPANY  
FIFTY-FIVE DUANE STREET - NEW YORK

---

# The New York Edison Company

## GENERAL OFFICES 55 Duane Street

*Telephone Worth 3000*

BRANCH OFFICES	TELEPHONE
424 Broadway	: : Spring 9890
115 Delancey St	: : Orchard 1960
124 West 42d St	: : Bryant 5262
839 Third Avenue	: : Plaza 6543
27 East 125th St	: : Harlem 4020
360 East 149th St	: : Melrose 3340

**EMERGENCY NIGHT AND  
SUNDAY CALL—BRYANT 145**

### *Territory Served by the Various Supply Offices*

**FIRST DISTRICT, 424 BROADWAY**  
All territory South of Eighth Street West  
of the Bowery  
**TELEPHONE No SPRING 9890**

**DELANCEY STREET  
DISTRICT, 546 PEARL STREET**  
All territory South of Eighth Street East  
of the Bowery  
**TELEPHONE No WORTH 3000**

**SECOND DISTRICT  
115 WEST 39th STREET**  
Eighth Street to Fifty-ninth Street, both  
inclusive, from the East to the North River  
**TELEPHONE No BRYANT 145**

**THIRD DISTRICT  
173 WEST 107th STREET**  
North of Fifty-ninth Street from East to  
North River to and including One Hun-  
dred and Thirty-sixth Street, east of St  
Nicholas Avenue, and to the south side  
of One Hundred and Thirty-fifth Street  
west of St Nicholas Avenue  
**TELEPHONE No RIVERSIDE 4889**

**BRONX DISTRICT  
140th STREET AND RIDER AVE**  
All territory lying within the Borough of  
the Bronx  
**TELEPHONE No MELROSE 3330**



*"At Your Service"*



# THE EDISON MONTHLY



APRIL  
1911

THE NEW YORK EDISON COMPANY  
FIFTY-FIVE DUANE STREET - NEW YORK

# The New York Edison Company

**GENERAL OFFICES**  
**55 Duane Street**  
*Telephone Worth 3000*

<i>BRANCH OFFICES</i>	<i>TELEPHONE</i>
424 Broadway : :	Spring 9890
115 Delancey St : :	Orchard 1960
124 West 42d St : :	Bryant 5262
839 Third Avenue : :	Plaza 6543
27 East 125th St : :	Harlem 4020
360 East 149th St : :	Melrose 3340

**EMERGENCY NIGHT AND  
SUNDAY CALL—BRYANT 145**

*Territory Served by the  
Various Supply Offices*

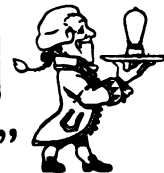
**FIRST DISTRICT, 424 BROADWAY**  
All territory South of Eighth Street West  
of the Bowery  
**TELEPHONE No SPRING 9890**

**DELANCEY STREET  
DISTRICT, 546 PEARL STREET**  
All territory South of Eighth Street East  
of the Bowery  
**TELEPHONE No WORTH 3000**

**SECOND DISTRICT  
115 WEST 39th STREET**  
Eighth Street to Fifty-ninth Street, both  
inclusive, from the East to the North River  
**TELEPHONE No BRYANT 145**

**THIRD DISTRICT  
173 WEST 107th STREET**  
North of Fifty-ninth Street from East to  
North River to and including One Hun-  
dred and Thirty-sixth Street, east of St  
Nicholas Avenue, and to the south side  
of One Hundred and Thirty-fifth Street  
west of St Nicholas Avenue  
**TELEPHONE No RIVERSIDE 4880**

**BRONX DISTRICT  
140th STREET AND RIDER AVE**  
All territory lying within the Borough of  
the Bronx  
**TELEPHONE No MELROSE 3330**



*"At Your Service"*

62

# THE EDISON MONTHLY



MAY  
1911

THE NEW YORK EDISON COMPANY  
FIFTY-FIVE DUANE STREET - NEW YORK

# The New York Edison Company

## GENERAL OFFICES 55 Duane Street

*Telephone Worth 3000*

BRANCH OFFICES	TELEPHONE
424 Broadway	: : Spring 9890
126 Delancey St	: : Orchard 1960
124 West 42d St	: : Bryant 5262
839 Third Avenue	: Plaza 6543
27 East 125th St	: : Harlem 4020
360 East 149th St	: : Melrose 3340

## EMERGENCY NIGHT AND SUNDAY CALL—BRYANT 145

### *Territory Served by the Various Supply Offices*

FIRST DISTRICT, 424 BROADWAY  
All territory South of Eighth Street West  
of the Bowery  
TELEPHONE No SPRING 9890

DELANCEY STREET  
DISTRICT, 546 PEARL STREET  
All territory South of Eighth Street East  
of the Bowery  
TELEPHONE No WORTH 3000

SECOND DISTRICT  
115 WEST 39th STREET  
Eighth Street to Fifty-ninth Street, both  
inclusive, from the East to the North River  
TELEPHONE No BRYANT 145

THIRD DISTRICT  
173 WEST 107th STREET  
North of Fifty-ninth Street from East to  
North River to and including One Hun-  
dred and Thirty-sixth Street, east of St  
Nicholas Avenue, and to the south side  
of One Hundred and Thirty-fifth Street  
west of St Nicholas Avenue  
TELEPHONE No RIVERSIDE 4889

BRONX DISTRICT  
140th STREET AND RIDER AVE  
All territory lying within the Borough of  
the Bronx  
TELEPHONE No MELROSE 3330



*"At Your Service"*





As a result of the above, the following hypotheses were formulated:

1. The number of visits to the nest will be positively related to the number of eggs laid.
2. The number of visits to the nest will be positively related to the number of chicks that survive.
3. The number of visits to the nest will be positively related to the number of chicks that are fed.
4. The number of visits to the nest will be positively related to the number of chicks that are grown.
5. The number of visits to the nest will be positively related to the number of chicks that are fledged.

## MANUFACTURERS AND AGENTS (Continued)

### Globes—Reflectors

Cary E. E.—30 Church St  
Frink I. P.—239-243 11th Ave  
Holophane Co.—36 West 30th St  
Macbeth-Evans Glass Co.—10 West 30th St  
Opalux Co. The—258 Broadway  
Phoenix Glass Co.—15 Murray St  
Weeks Nelson—217 William St

### Motors—General Uses

Allis Chalmers Co.—71 Broadway  
Backus & Leese Co.—410 West 13th St  
Bell Electric Motor Co.—35 Church St  
Bender Geo.—82-84 Centre St  
Burke Elec Co.—35 Church St  
Caldwell & Osterhout—232 Fulton St  
Carnahan & Dalzell—John and Nassau Sts  
Century Electric Co.—30 Church St  
Crocket-Wheeler Co.—30 Church St  
Diehl Mfg Co.—90 Prince St  
Eck Dynamo & Motor Co.—10 Murray St  
Emerson Elec Mfg Co. The—30 Church St  
Faulkner Morse & Co.—35 Church St  
Ft Wayne Electric Works—35 Church St  
Garwood Electric Co.—149 Broadway  
General Electric Co.—30 Church St  
Haire Arthur W.—19 East 42d St  
Holtzclomb D. S.—60 Centre St  
Holtzer Cabot Electric Co.—85 Warren St  
Kenny Elec Mfg Co.—99 West St  
MacGovern Archer & Co.—114 Liberty St  
Mechanical Appliance Co.—30 Church St  
Onida Electric Co.—300 West Broadway  
Peerless Electric Co.—43 West 27th St  
Rival Sewing Mach & Elec Motor Co.—347 West Broadway  
Robbins & Meyers Co.—145 Chambers St  
Rossiter-MacGovern & Co.—99 West St  
Sprague Electric Co.—527 West 34th St  
The Triumph Electric Co.—30 Church St  
The Fidelity Elec Co.—711 Broadway  
Western Electric Co.—403 West St  
Westinghouse Elec & Mfg Co.—105 Broadway

### Motor Inspection—Maintenance— Repairs and Care of Flaming Arcs

Bell Elec Motor Co.—35 Church St  
Borne Chas A Co.—92 Grand St  
Chester Co William S.—43 East 8th St  
Gent Flaming Arc Service Co.—1133 Broadway  
Graham Bros Co.—600 Hudson St  
Lend Electric Co.—213 West 4th St  
Maintenance Co. The—31 Franklin St  
Naumen Elec Co.—82 Gold St  
Naylor & Newton—243 Canal St  
Reilly's Las Sons Co.—122 115 Centre St  
Weideman Elec Co. Geo.—35 Rock St

### Pumps

D'Olier Engineering Co.—10 Liberty St  
Gould's Mfg Co.—10 Murray St  
Holland Machine Co.—21 Elm St  
Plant Tool Works The—104 Liberty St  
Quimby William L. Inc.—3 West 26th St  
Rider Lussier Engine Co.—38 Warren St  
Rugby Pump & Mach Co.—74 Warren St  
Watson Station Co.—35 Church St

### Refrigeration

Brunswick Refrigerating Co.—30 Church St  
De La Vergne Mach Co.—Foot East 138th St  
York Mfg Co.—72 Trinity Place

Voss Ice Mach Works—242-252 East 122d St  
Westerberg & Williams—90 West St

### Switch and Distributing Boards

Anderson Mfg Co A & J M.—135 Broadway  
Automatic Switch Co.—131 Liberty St  
Columbia Metal Box Co.—220 East 144th St  
Crouse Hinds Co.—35 Church St  
Krantz Mfg Co.—105 7th St Brooklyn  
Metropolitan Elec Mfg Co.—East Ave & 14th St, L. I. City  
Metropolitan Engineering Co.—124-1252 Atlantic Ave Brooklyn  
National Switchboard Co.—534 West 48th St  
Pringle Elec Mfg Co. The—3641 Cortlandt St  
Rall Frederick—19 Park Pl  
Trumbull Electric Mfg Co.—114 Liberty St  
Walker Electric Co.—30 Cortlandt St  
Witt Electric Co.—97 Warren St

### Vacuum Cleaners

Buffalo Vacuum Cleaner—116 Nassau St  
Duntly Mfg Co.—24 Fifth Ave  
Electric Cleaner Co.—1 East 41st St  
Empire Vacuum Co.—112 West 30th St  
Eureka Vacuum Cleaner Co.—30 Warren St  
Everson Vacuum Cleaner Co.—45 West 34th St  
Hoover Electric Suction Sweeper Co.—Mar-  
bridge Bldg Broadway & 34th St  
Livingston & Co. J.—113 East 22d St  
Modern Devices Inc.—549 Fifth Ave  
Peerless Suction Cleaner Co.—89 Chambers St  
Rosentfield Mfg Co.—587 Hudson St  
Spencer Turbine Cleaner Co.—1 Madison Ave  
The Cleanator—30 Cortlandt St  
The McCrum Howell Co.—Park Ave & 41st St  
The Regina Co.—Broadway & 17th St  
The Vortex Vacuum Cleaner—Boston Mass  
The Vacuum Cleaner Co.—11 East 24th St  
Thurman Vacuum Cleaner Co.—358 Fifth Ave  
Vacuum Engr Co.—114 Liberty St  
Vacuum Process Renting Co.—2628 Broadway

### SUPPLY DEALERS

Atlas Elec Co.—1727 3d Ave  
Bonnell W. A. Co.—132 Church St  
Brown Wm S.—3 West 20th St  
Bunnell & Co. J. H.—20 Park Pl  
Burnet Co. The—60 South St & 1800 Park Ave  
Chapin Chas E.—201 Fulton St  
Central Electrical Supply Co.—20 West 15th St  
Fletcher Stanley Co.—32-34 Frankfort St  
Fullerton Electric Co.—160-115 West 20th St  
Irish Elec Co. W. F.—60 Cortlandt, 111 W 125th  
and 104 West 34th  
Latham & Co. L. E.—4 Murray St  
Lee Co. J. Fred—45 East 20th St  
Levinger Chas W.—183 Greenwich St  
Loce Electric Co.—34 Vesey St  
Manhattan Electric Supply Co.—17 Park Pl, 14  
Murray St, 110 West 42d St, 37 West 125th St  
N. W. Elec Supply Co.—1250 Atlantic Av Brooklyn  
Ostrander W. R.—22 Dec St  
Richards & Bros Geo E.—471 Fourth Ave  
Royal Eastern Elec Sup Co.—500 Willis Ave  
Brooklyn  
Sibley & Pittman—29 Warren St  
Starb & S. Pattersons—25 Murray St, 27 Warren  
St, 104 East 11th Ave  
Storage Battery Supply Co.—230 East 27th St  
Thomas & Betts Co.—200 Broadway  
Universal Cutter Co.—130 West 25th St  
Western Electric Co.—403 West St  
Wood C. D. Jr.—130 Liberty St











B'LE 0511-4 - 1914

